Annual AVMA Meeting

Denver, Colorado

August 14-18, 1960

Journal

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

A Canine Acetabular Index

A SURVEY was made to determine measurements which can be used as an index of canine acetabular depth. Page 97

Important Animal Diseases in Great Britain

A REPORT of animal diseases important to the economy of Great Britain. Page 101

Penicillin in Milk and Blood of Cattle

A STUDY of the transfer of penicillin from treated to untreated quarters and the mechanism of such transfer. Page 110

Oxygen—Anesthesia and Therapy

INEXPENSIVE apparatus developed to administer oxygen-ether mixture for anesthesia and oxygen for resuscitation. Page 114

AN OXYGEN therapy cage, equipped with nebulizer and connected to a piped oxygen system was used in successful treatment of animals with respiratory involvements. Page 123

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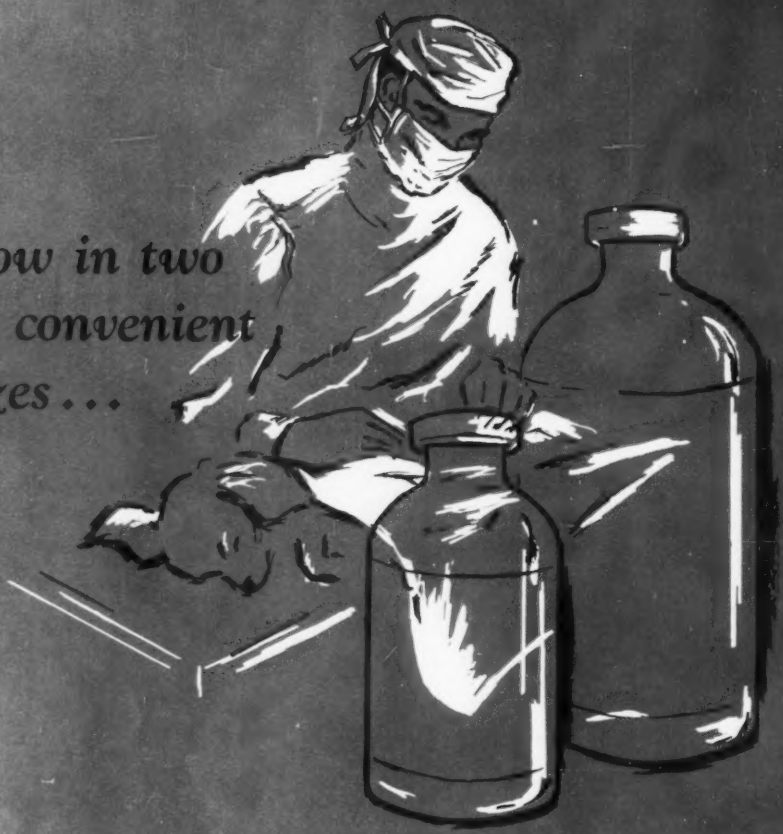

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Journal

OF THE
AMERICAN VETERINARY
MEDICAL ASSOCIATION

Vol. 137 No. 2 July 15, 1960

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Correspondence

May 29, 1960

Dear Sir:

In the article "Immunohematologic Studies of the Thoroughbred Horse" by Gilman, Schwarz, and Wallerstein in the May, 1960, issue of the *American Journal of Veterinary Research*, the authors state that it is possible to test for 56 different blood types in the horse. According to my calculation (using the information given in the manuscript on the antigens found and the hereditary transmission of the blood groups), it should be possible to test for 64 different blood types. The presence or absence of six separate isoantigens in the erythrocytes of the Thoroughbred horse have been used to determine the blood types. If the presence or absence of each of the six factors is independent of the presence or absence of the remaining five factors, then the presence or absence of each of the six factors allows for 2^6 possibilities, or $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 64$ *possible* blood types. Have I terpreted some information in this article?

I would like to compliment the authors of the article on the fine work they have been doing. There is a real need for more blood research on all of the domestic animals.

Sincerely,
s/Max L. Glasgow, Jr., D.V.M.
Spokane, Wash.

June 13, 1960

Dear Sir:

We were delighted to read Dr. Glasgow's letter concerning our report entitled "Immunohematologic Studies of the Thoroughbred Horse." It is always heartwarming to know that people will not only read research articles but will take the trouble to sift through the details and offer constructive criticism.

Dr. Glasgow is correct. There are 64 possible blood types that may be obtained using our six different testing serums. Our table showing the 64 different types was deleted in editing. However, with red faces we admit to being poor mathematicians; we had totaled the number to 56 incorrectly.

Again, our thanks for the interest shown.

Very truly yours,
s/M. A. Gilman, V.M.D.
Westbury, L. I., N. Y.

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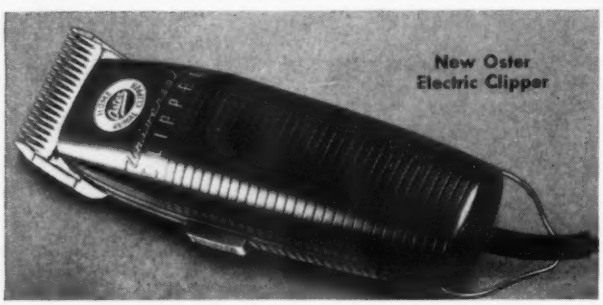

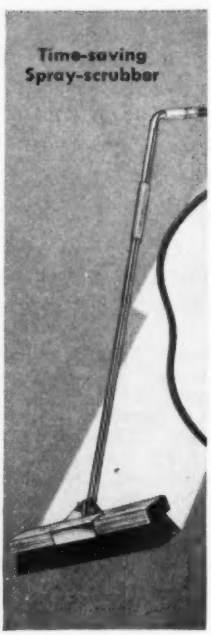

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news from Washington . . .

FROM THE AVMA WASHINGTON OFFICE
J. A. McCallam, VMD
Brig. Gen. USA (Ret.)

LEGISLATIVE

The following bills have been cleared by Congress for Presidential action:

USDA Appropriations Fiscal 1961, *H.R. 12117,* (see JOURNALS June 15, 1960, adv. p. 8, July 1, 1960, adv. p. 12) cleared for President June 20, 1960. Includes for ARS: research programs—$68,827,200, including $750,000 for research on spray residues; poultry disease—$60,000 for research at Athens, Georgia; plant, animal diseases and pest control— $52,-236,000, including $19,000,000 brucellosis program with proviso inserted effective 1963, that states must contribute minimum of 40 per cent of total cost or be excluded from the program; meat inspection—$21,562,000.

Marketing Services $26,579,000 including $10,296,000 for poultry inspection. The total for "Marketing Service" *per se* had been stricken in the House on point of order, restored by Senate and agreed by House. (Note: Conference Report on bill is House Report No. 1863. To obtain, write House Document Room, U.S. Capitol Bldg., Wash. 25, D.C.)

Pesticides *H.R. 7480,* relating to label declaration of the use of pesticide chemicals on raw agricultural commodities (see JOURNAL, Apr. 15, 1960, adv. p. 14).

Science Scholarships *H.R. 11985,* makes American nationals eligible for scholarships and fellowships authorized by National Science Foundation Act.

Self-Employed Retirement Favorably Reported *H.R. 10*—Self-Employed Individuals' Retirement Act, with amendment, favorably reported by Senate Finance Committee June 17, 1960. Senate passage necessary then due to amendment. House concurrence required before bill can be cleared for the President.

House Committee Reports on Color Additives, Traineeships House Interstate Commerce Committee favorably reported the following—Color Additives Amendments of 1960, *H.R. 7624,* (Amended) which prescribes conditions under which additives may be safely used (*House Report No.* 1761); *H.R. 6871,* (amended) regarding extension traineeship under Public Health Training Act (House Report No. 1780).

Continued on adv. p. 16

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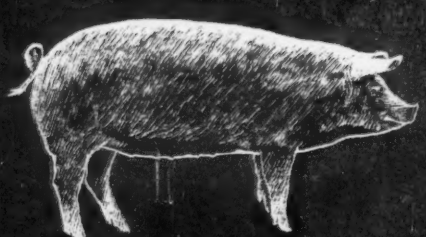

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Washington News—continued

Poultry Products Inspection Hearings Held

House Agriculture Subcommittee Dairy and Poultry held hearings June 13, 1960, on *H.R. 11050*, to amend Poultry Products Inspection Act. (Identical bill S. 3089) (see JOURNAL Apr. 1, 1960, adv. p. 8) adversely reported June 15, to full committee; tabled by June 16. Testifying for AVMA in opposition to bill was Dr. H. B. Kingman, Jr., executive secretary.

NEW BILLS

Social Security Amendments

H.R. 12580, Rep. Mills (D., Ark.) Social Security Amendments of 1960. Among amendments proposed—grants to states for medical care for aged persons of low income; extended and improved coverage under FOASI System. Would also include coverage of self-employed physicians and remove "age 50" requirement pertaining to disabled insured worker.

MISCELLANEOUS

Vacancies Now Exist in Army Veterinary Corps.

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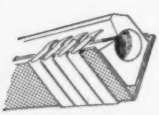

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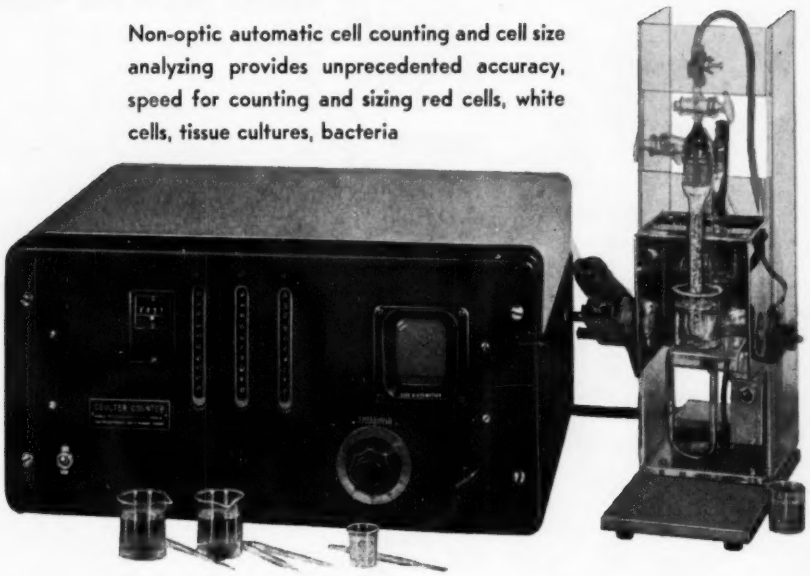

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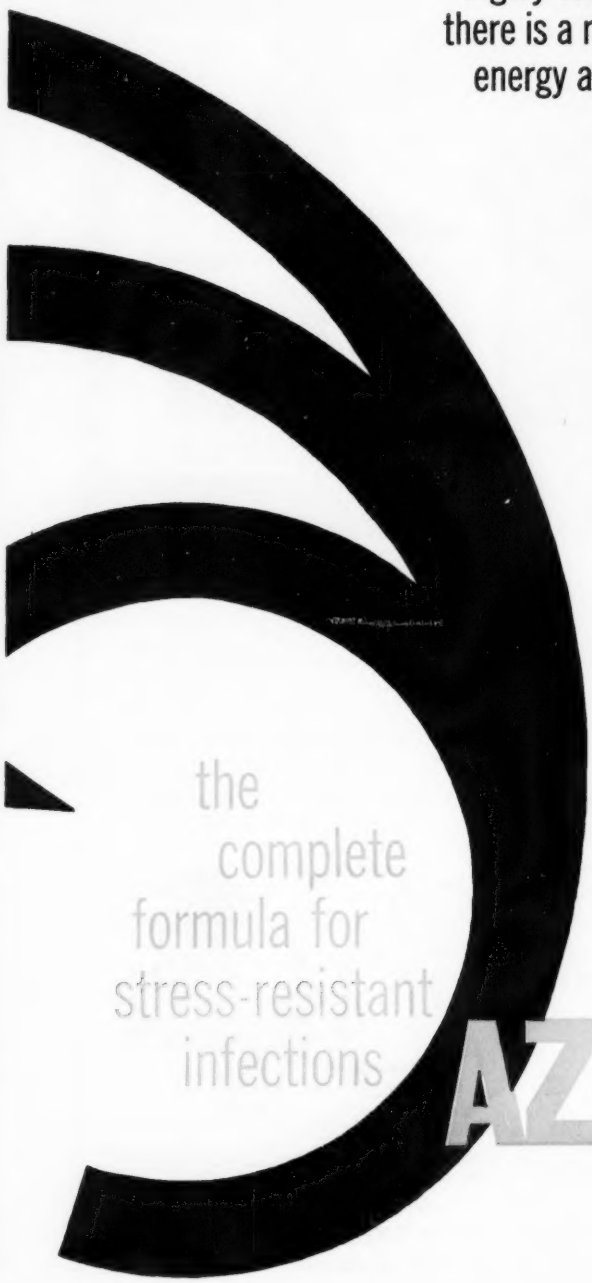

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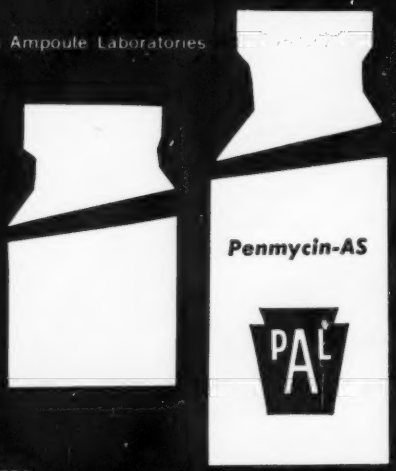

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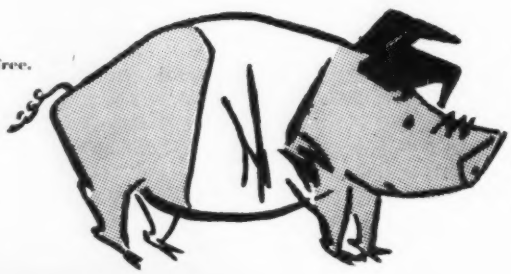

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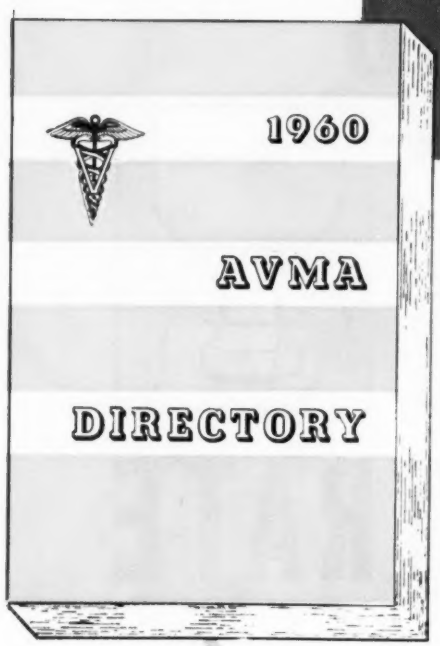

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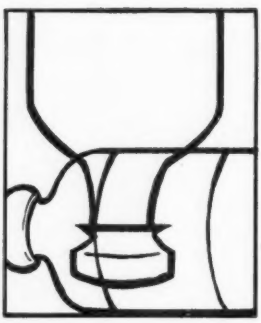

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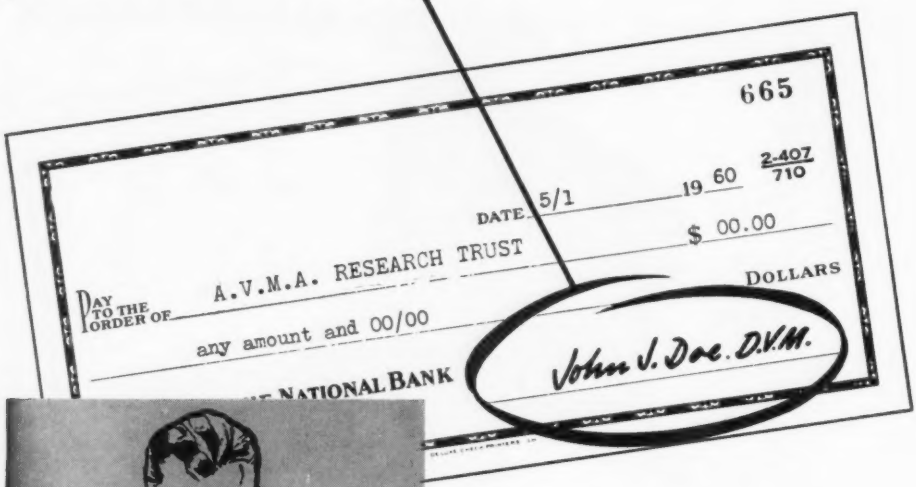

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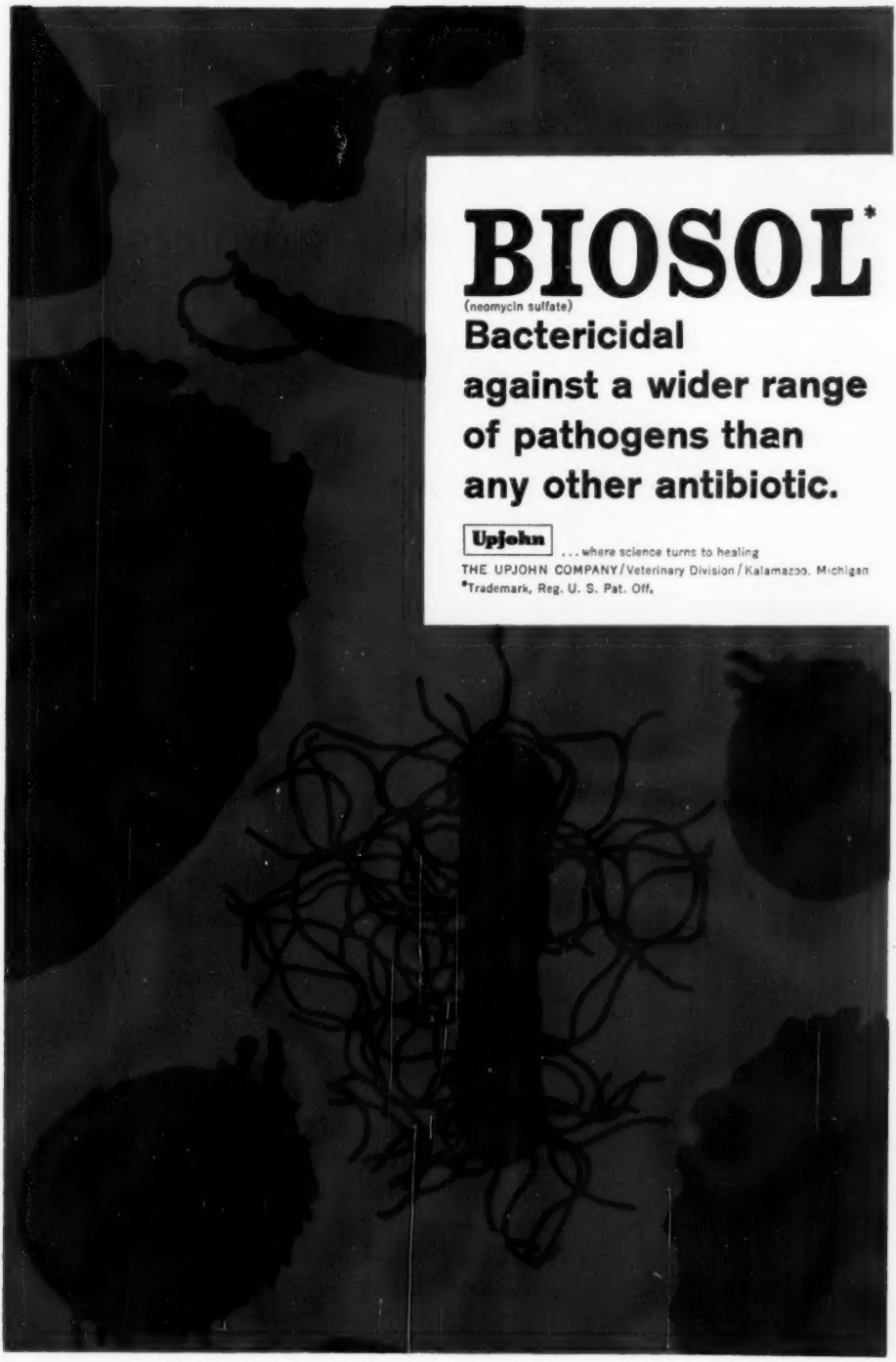
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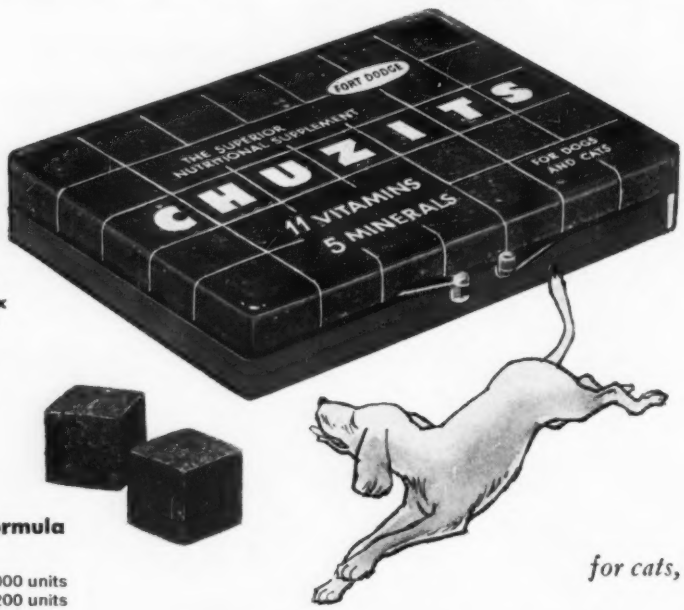

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Vol. 137

No. 2

July 15, 1960

Journal

OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

A Canine Acetabular Index

W. H. RHODES, V.M.D., M.MED.SC. (VET.RAD.)
J. JENNY, DR.MED.VET.

THE FREQUENCY of canine hip disease in which acetabular structure is altered makes accurate radiographic evaluation important. As available methods for such evaluation proved unsatisfactory to the authors, a survey of canine pelvic radiographs was made in an attempt to determine some relatively constant characteristic in this region. The result of this survey was a set of measurements which can be used as an index of acetabular depth.

Various lines, angles, and measurements are described for radiologic studies of the human pelvis. No less than a dozen criteria have been used in the evaluation of dysplastic human pelves.[4] There are numerous descriptions[1,5-8] of acetabular abnormalities in the veterinary literature. With the exception of Hilgenreiner's line and the acetabular index of Kleinberg and Lieberman,[2] no attempts have been made to establish criteria based on exact measurements.

Anatomy

The acetabulum is a concave socket which articulates with the round femoral head. It consists of a central fossa surrounded by a horseshoe-shaped articular surface on its cranial, dorsal, and caudal aspects. The articular surface is incomplete ventrally (fig. 1). The cranioventral third of the acetabulum arises from the cranial ramus of the pubic bone. Where the pubic bone becomes a part of the acetabular articular surface, it forms an angle ventral to the acetabular fossa (fig. 1, 2).

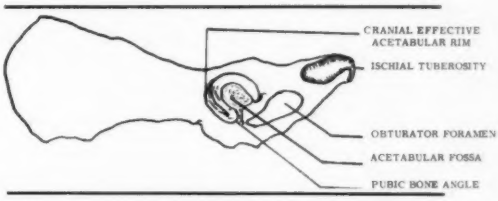

Fig. 1—Tracing of a lateral pelvic radiograph.

In a ventrodorsal radiograph of the normal pelvis, the concave acetabular wall is best seen in the craniodorsal area. The lateral limit of this wall forms the lateral border of the acetabulum.

Any segment of the cranial acetabular rim which is not concave does not serve to hold the femoral head in place.

The lateral limits of the concave part of the cranial acetabular rim will be referred to as the "cranial effective acetabular rim" (fig. 1, 2).

Methods

Using dividers and a centimeter scale, radiographs of 150 normal canine pelves were measured in the

Dr. Rhodes is assistant professor of radiology, and Dr. Jenny is associate professor of veterinary surgery, University of Pennsylvania, School of Veterinary Medicine, Philadelphia.

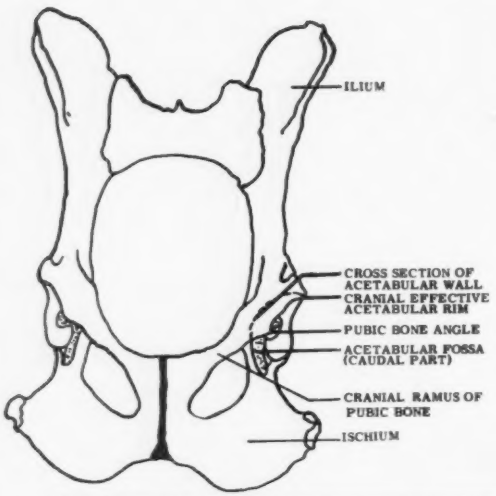

Fig. 2—Tracing of a ventrodorsal pelvic radiograph.

manner indicated, and the results were plotted on a graph. Miniature, mixed, achondroplastic, and giant breeds of dogs were examined.

The difference in distance between the angles of the cranial rami of the pubic bones ventral to the acetabular fossae and the cranial effective acetabular rims has proved to be an indication of acetabular depth. By plotting the distance between the left and right cranial effective acetabular rims (fig. 4, distance between 1 and 1′) on the abscissa (fig. 3, distance between cranial rims) against the distance between the angle of the pubic bones over the acetabulums (fig. 4, distance between 2 and 2′) plotted on the ordinate (fig. 3, distance between pubic angles), a graphic and quantitative representation of the total depth of the 2 acetabula is obtained.

All radiographs in this study were ventrodorsal projections. Sufficient x-ray penetration was used to visualize the details of acetabular structure.

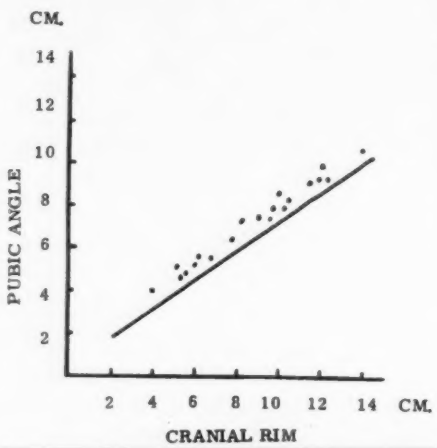

Fig. 3—The plots of normal acetabular measurements are represented by the solid line (slope 0.67). The dots represent plots from pelvic radiographs of dogs with congenital hip dysplasia. Distance between pubic angles (vertical); distance between cranial rims (horizontal).

Results

The results plotted for 94 per cent of 150 normal canine pelvic radiographs fall either on or immediately adjacent to a straight line with the slope of 0.67 (fig. 3). If the distance between the cranial effective acetabular rims is increased while the distance between the angle of the pubic bones remains constant, the plot on the abscissa will shift to the right and below the line representing normal plots. For this reason, points of intersection below the line indicate a greater than average acetabular depth. When the acetabula become shallow as the result of cranial rim loss, the distance between the cranial effective acetabular rims becomes less, relative to an unchanged distance between the pubic bone angles. The plot of cranial rim measurements shifts to the left on the abscissa and hence is displaced above the line of normal. The acetabular depth is represented with a high degree of graphic and quantitative accuracy in the radiographs studied.

The same measurements were made on 100 pelvic radiographs of dogs diagnosed as having congenital hip dysplasia. In this condition, the characteristic shallow acetabulum results from loss of the cranial and dorsal acetabular rims. The distance between the 2 cranial effective acetabular rims decreases. This reflects a decrease in acetabular depth. No change occurs in the position of pubic bone angles over the acetabula. It becomes apparent that, as the distance between the cranial effective acetabular rims decreases relative to a constant distance between the angle of the pubic bones over the acetabula, the plot of these measurements on the graph is displaced to the left and hence above the line representing normal acetabula. (fig. 3-5)

Plots of a series of dysplastic animals compared with the line representing the plots of normal canine acetabular measure-

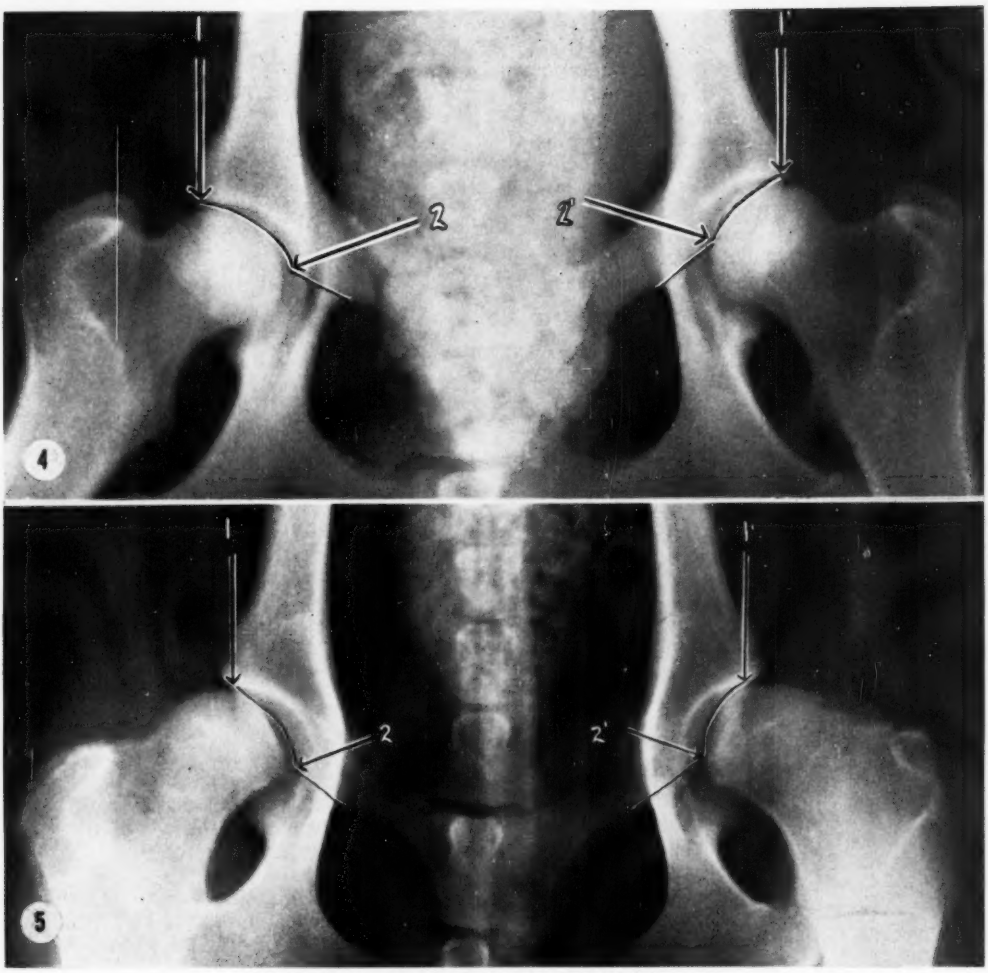

Fig. 4—A radiograph of a normal pelvis.

Fig. 5—A radiograph showing congenital hip dysplasia. Figures 4 and 5 have been retouched for the sake of clarity in reproduction. In both figures points 1 and 1' are the cranial effective acetabular rims. Points 2 and 2' are the angles of the pubic bones over the acetabula.

ments is shown (fig. 3). A point greater than 4 mm.* above and perpendicular to the line of normal represents an acetabulum more shallow than 94 per cent of normal.

Discussion

The measurements described may be used as an index of acetabular depth. This acetabular index is not intended as a key to the diagnosis of hip dysplasia. It is an observation of normal animals. The changes which the index undergoes in hip dysplasia are described. Signs of hip dysplasia such as slight cranial rim loss and minimal subluxation can be seen radiographically before the acetabula become shallow enough to fall within the dysplastic range of the graph (fig. 3). If the disease is recognized before this much change occurs, the points of intersection may fall within normal limits. Those less familiar with the earliest radiographic signs of hip dysplasia may

*This point was chosen because the highest percentage of normal plots fall below it and the highest percentage of dysplastic plots above it.

find this graph an aid in determining acetabular shallowness.

If radiographs of the canine pelvis are seen frequently, it is possible to develop a satisfactory concept of normal and diseased acetabula. If, however, such radiographs are seen infrequently, acetabular evaluation may be extremely difficult. It is hoped this acetabular index will be an aid in the recognition of normal and abnormal acetabula.

Summary

It has been shown that the acetabular depth can be measured and represented graphically and quantitatively with a high degree of accuracy. This measurement may be used in the evaluation of normal and abnormal acetabula.

References

[1]Bengt, Henricson, and Olsson, Sten-Eric: Hereditary Acetabular Dysplasia in German Shepherd Dogs. J.A.V.M.A., 135, (Aug. 15, 1959): 207-211.

[2]Berge, E.: Die angeborene Hüftgelenksdysplasie beim Hund. Deutsche tierärztl. Wchnschr., 64, (1957): 509.

[3]Hare, W. C. D.: Radiographic Anatomy of the Canine Pelvic Limb. Part 1., 36, J.A.V.M.A., 136, (1960): In press.

[4]Hart, Vernon L.: Congenital Dysplasia of the Hip Joint and Sequelae. Charles C Thomas, Springfield, Ill., 1952.

[5]Moltzen-Neilson, H.: Calvé-Perthes-Krankheit, Malum Deformans Coxae Juvenilis bei Hunden. Arch. f. wissensch. prakt. Tierheilk., 72, (1938): 91.

[6]Olsson, S. E.: Acetabular Dysplasia and Legg-Perthes Disease, Two Hip Diseases of Current Interest in the Dog. Proc. 8th Nordic Vet. Congress, 1958, (1959): 948.

[7]Schnelle, Gerry B.: Radiology in Canine Practice. North American Veterinarian, Evanston, Ill., 1945.

[8]Schnelle, Gerry B.: Congenital Dysplasia of the Canine Hip and Sequelae. Proc. Book, AVMA (1954): 253.

Chronology of Intrauterine *Toxocara canis* Infection in the Dog

Eight worm-free, cage-raised bitches, 11 to 21 months old, were given 20,000 infective *Toxocara canis* eggs at various times during pregnancy. Surgical removal and peptic digestion of fetuses at various intervals demonstrated that invasion of the fetus did not occur before gestation day 42. Larvae required at least 14 days after infection of the bitch to invade tissues of the uterus and fetus.

Five bitches kept free from reinfection were bred again and whelped 241 to 358 days after initial infection. On fecal examination, patent *T. canis* infections developed in every litter with 23 to 40 days of whelping and in every bitch within 25 to 46 days of whelping. These infections persisted in the bitches 9 to 108 days (av. 60) and then ceased spontaneously.—*J. Parasitol., 45, (1959): 43-44; abstr. 483 in Vet. Bull., Feb., 1960.*

Human Virus May Cause Shipping Fever

Further evidence that viruses cause shipping fever in cattle has been found. In 7 separate epizootics, scientists isolated myxovirus parainfluenza 3 from nasal secretions and diseased lungs of cattle. The agent had earlier been demonstrated as a common cause of respiratory infections in children.—*Lab World, 11, (1960): 310.*

Certain Important

Animal Diseases

in Great Britain

J. N. RITCHIE, C.B., B.SC., F.R.C.V.S., D.V.S.M., F.R.S.E.

DISEASES eradicated from Great Britain include rinderpest, contagious bovine pleuropneumonia, sheep pox, sheep scab, glanders, epizootic lymphangitis, parasitic mange of horses, and rabies. At present, notifiable diseases include foot-and-mouth disease, fowl pest, swine fever (hog cholera), anthrax, and certain forms of tuberculosis in cattle.

Foot-and-Mouth Disease

Foot-and-mouth disease is not endemic in Great Britain and there are sometimes periods of many months when it does not occur. By the system followed, herds do not contain any vaccinated or recovered animal.

In the past 5 years, outbreaks have occurred as follows: 12 in 1954; 9 in 1955; 162 in 1956; 184 in 1957; and 116 in 1958.

Whenever foot-and-mouth disease is suspected to exist, the owner or person in charge is required by law to notify immediately the local police, who are required to inform the Ministry of Agriculture, Fisheries and Food by telegram, and also the local authority. Restrictions are applied prohibiting the movement of people and animals from the premises. Staff is on duty day and night so that there may be no delay in diagnosis. If the veterinary officer suspects that disease exists, he signs a notice prohibiting the movement of animals out of, into, or within an area lying within a radius of 5 miles of the premises concerned. The veterinary officer reports by telephone to headquarters. If his report warrants a definite positive diagnosis, the existence of disease is confirmed. In difficult or doubtful cases, material is quickly conveyed to the Animal Virus Disease Institute, Pirbright, for laboratory tests. Material from all initial positive cases is sent to Pirbright for typing.

The established policy in Great Britain requires the immediate slaughter of all affected animals and those which are, or have been recently, in contact with the affected animals, or otherwise directly exposed to infection. The object is to stop the manufacture or multiplication of virus as quickly as possible. All the animals are slaughtered on the premises, and the carcasses destroyed either by burning or deep burial. This operation is usually completed within 24 hours. A thorough disinfection of the premises, including destruction of possibly contaminated feedstuffs, is carried out at the expense of the Ministry under the supervision of a veterinary officer. Six weeks after the completion of slaughter, or 4 weeks after the completion of disinfection, restrictions are withdrawn from the infected place. The full market value is paid by the Ministry as compensation for all animals slaughtered. A police constable is on duty at the entrance to the premises to see that the rules applied to the infected place are observed.

When diagnosis is confirmed, an infected area is declared by an Order of the Minister embracing a radius of 10 miles around the infected premises. No movement of animals out of this area is permitted, and movements of animals into and within the area are controlled. Only necessary movements are allowed. All dogs within 5 miles must be kept under control. A warning notice to stock owners is distributed in in-

Dr. Ritchie is chief veterinary officer, Ministry of Agriculture, Fisheries and Food, London, England.

Based on a presentation given before the Section on Public Health and Regulatory Veterinary Medicine, at the 96th Annual Meeting, American Veterinary Medical Association, Kansas City, Mo., Aug. 24-27, 1959.

fected areas, indicating the precautions to be taken and requirements to be observed to prevent spread of infection. In uncomplicated cases, infected-area restrictions are normally maintained in the 10-mile area for 14 days, when the area is reduced to 5 miles. This reduced area is maintained for an additional period of 7 days. Variations in this procedure may be necessary in the case of more complicated outbreaks.

A special office is set up near the primary outbreak and the veterinary staff is moved into this locality. Besides supervising slaughter and disinfection on the infected place and tracing the movement of animals to and from it, the veterinary staff carries out patrol duty. This involves examination of all animals in an area of 2 miles around the infected place to discover any spread of infection and to ascertain if there is an earlier case than the one reported. Only staff members who have not been in contact with the infection are used for this work, and protective clothing is worn and careful personal disinfection carried out. The position of all animals is plotted in a large-scale map so that the situation in each of the premises and all fields is known.

In the infrequent case of more widely spread outbreaks, these restrictions are supplemented by a temporary "standstill" order controlling the movement of animals within a specified area surrounding the actual infected areas. Such an order is a useful adjunct in cases where infected or contact animals have been widely distributed through a sale yard. It prohibits further movement until tracing and examination of all animals exposed to infection have been completed and restrictions placed on individual farms.

Fowl Pest (Newcastle Disease)

In February, 1947, Newcastle disease was imported with infected poultry carcasses from Central Europe. The infection was particularly virulent, with a high mortality, and investigation clearly revealed that in many cases the poultry had had access to unboiled garbage. Despite the fact that the disease spread rapidly (2,222 cases were confirmed in 1947), it was brought under control in the next 3 years. Since the clinical signs were spectacular and the death rate was high, the disease was readily recognized. In addition to the slaughter of diseased poultry and all fowl that had been in contact with them, and by scrupulous cleansing and disinfection of the premises afterward, stringent restrictions were placed on the marketing and movement of poultry. Importation of live poultry and hatching eggs from countries in which Newcastle disease was prevalent was banned, as was importation of poultry carcasses, except from a few countries. With these precautions, and an energetic application of the slaughter policy, the disease was reduced to a low level by the summer of 1950.

In October, 1950, the first epizootic of the subacute form of the disease was confirmed near a U.S. Air Force camp. The signs in this case were similar to those described in the American literature and it was apparent that this disease would be less readily recognized and reported by poultry owners. Wide publicity was given to this new aspect of the disease, because it was obvious that it would severely test the policy of eradication by slaughter.

When a case is reported, movement restrictions on poultry, hatching eggs, and equipment on the premises are immediately imposed and the diagnostic inquiry is made by a whole-time veterinary officer. The hemagglutination-inhibition (HI) test is widely used for confirmation and, in positive cases, restrictions are served on all flocks within a radius of one half mile of the infected flock. This virtually means a standstill order surrounding an infected farm, which is not released until disinfection has been completed and exploratory HI tests have been carried out in flocks close to the infected unit. The diffusibility of the virus has led us to the almost invariable practice of slaughtering flocks which are immediately continguous to the infected unit.

When it has become apparent that infection is widespread in a district, restrictions are applied which stop the movement of poultry out of the defined area and allow movement of poultry within the area only under license; with certain exceptions, licenses are issued only to permit movements of poultry for slaughter.

There is ancillary legislation aimed at reducing the risks of spread of Newcastle disease. All poultry markets are licensed in one of two categories; those for store (raising) poultry and those for poultry

for immediate slaughter. The conditions under which the birds are sold are appropriate to the degree of risk involved. Poultry slaughterers make frequent visits to farms where they inspect and handle live birds. They must keep records of their transactions, and their slaughtering premises and equipment are subject to periodic inspection. The movement of poultry from a holding is prohibited if there has been a movement of poultry on to the holding in the previous 28 days. Legislation exists to ensure that market premises and poultry receptacles are disinfected after use.

There is no doubt that the disease has been kept under reasonably good control by our present methods. It has been virtually eradicated from Scotland, the north, the west, and the southwest of England and Wales. There have been about 900 cases confirmed *per annum* in the last 4 years and, although it is difficult to forecast a time in which complete eradication may be expected in those countries in which the disease is troublesome, it is clear that eradication could not be achieved by any other method.

Vaccination, which has been so widely applied in other countries, has generally been resorted to because there was no practicable alternative. Reports show that when vaccination is applied, only living vaccines give a durable resistance which is generally for only a matter of a few months. At present, these vaccines are propagated in chicken embryo, which brings concomitant risks of spreading other egg-transmitted infections, and which in some countries have complicated the respiratory disease incidence. Revaccination would be necessary in breeding flocks and, although this might be applied by some of the more highly developed units of our industry, there are areas with millions of fowl where Newcastle disease is almost unknown, and where owners would have no enthusiasm for vaccination. Therefore, there would be sizable sections of the poultry population at risk in these areas. Vaccination would mean that the poultry industry would have to live with the disease.

Swine Fever (Hog Cholera)

When an owner reports that he suspects swine fever, the local authority inspector prohibits the movement of swine into and out of the premises. If disease is confirmed, restrictions on the premises are usually maintained for 8 weeks after any pig has died on the premises from swine fever.

Owners of infected herds are advised to destroy affected pigs and to send to slaughter any healthy ones that are ready or nearly ready for the butcher. The use of antiserum is suggested when valuable breeding herds are involved. Animals that have recently been moved off the premises are traced and kept under observation.

In exceptional circumstances when the disease position is serious in a particular area, the Ministry of Agriculture declares a "swine fever-infected area." In this area, the holding of markets of store pigs is prohibited and the movement of pigs into, within, and out of the area is restricted.

During 1958, approximately 1 million doses of crystal violet vaccine were issued for use privately or under a voluntary scheme, the Registered Vaccinated Herds Scheme. The incidence of disease is extremely low in some counties of England and Wales and throughout Scotland. In these parts of the country, the expense of vaccination discourages owners from using the vaccine more widely.

The average number of epizootics per year over the last 20 years was 1,220. The actual number of cases for the past 5 years (1954-1958) was: 1,445, 1,403, 741, 960, and 1,263.

Anthrax

Seldom is more than 1 animal affected, and the disease is usually associated with imported feedstuffs or artificial manure. Carcasses are disposed of by burning, or burying at least 6 ft. deep between 1-ft. thick layers of quicklime. Thorough cleansing and disinfection of the infected place is carried out. Anthrax vaccine is used in certain districts where the disease is common, but anthrax is not endemic in Great Britain.

The average number of epizootics per year over the last 20 years was 430, and the actual number for the past 5 years (1954-58) was 350, 764, 1,245, 318, and 167.

Bovine Tuberculosis

In 1950, a plan to complete the eradication of tuberculosis, area by area, was in-

troduced. There are 3 stages: free testing, eradication, and attestation. First, the intention to declare an eradication area is announced usually 2 years in advance. During this period, free tuberculin testing is offered to exploit voluntary eradication. At the eradication stage, movement of stock into the area is controlled and herds, not already supervised or attested, are tested compulsorily and reactors are slaughtered. When all herds in an eradication area have been tested twice and reactors slaughtered, the area is declared attested.

Final eradication areas were declared in March, 1960, and the whole of Great Britain will become one large attested area before the end of 1960.

The number of clinically affected cattle notified and slaughtered in Great Britain has fallen from the pre-1939 level of about 20,000 annually to 350 in 1958.

In Great Britain, the tuberculin test is the single intradermal comparative test, using mammalian and avian tuberculins injected into 2 sites in the middle of the neck. By using this test, only animals affected with bovine or human type infection are removed as reactors. Avian type infection and skin tuberculosis, which do not normally spread from one bovine animal to another, are ignored. Infection with *Mycobacterium johnei* is not eliminated but this is another problem.

With the single intradermal comparative tuberculin test, we have reached a stage at which the percentage of reactors removed from all attested herds in 1958 was 0.14 per cent. In areas from which the disease has been virtually eliminated, the percentage is 0.11. Of 27,315 reactors slaughtered, 72.25 per cent showed lesions of tuberculosis. If it is accepted that animals with no discovered visible lesions were themselves affected, if they had been in contact with animals which did have lesions, the percentage rises to 83.28.

Efforts to improve the tuberculin tests will continue for, paradoxically, it is evident that a more accurate test is required as complete eradication of bovine type infection is approached.

Brucellosis

No scheme has yet been introduced for the eradication of brucellosis. It should be understood that *Brucella suis* has never been discovered in Great Britain and infection with true *Brucella melitensis* is not known; however, organisms with characteristics of *Br. melitensis* have been recovered from dairy herds, and there is authority to slaughter these animals, with compensation, purely as a public health measure.

A voluntary scheme was started in 1944, when it was considered that the losses of calves caused by contagious abortion was about 8 per cent. These losses have now been considerably reduced. The scheme provides for vaccination of heifer calves, from the age of 4 months up to the time of first breeding, with strain 19 Brucella vaccine at a standard charge to the farmers of 2/6d. (35c) per animal. There are about 400,000 vaccinations under this scheme each year and, in addition, veterinary surgeons are now carrying out about 250,000 private vaccinations each year with vaccine issued from the Ministry's laboratory. A certain amount of vaccination of adult cattle also takes place and it is clear that the infection rate is not being reduced at the same rate as abortions.

Before official measures of eradication are introduced, it is likely that an effort will be made to eliminate adult vaccination and to encourage even more vaccination of calves.

Scrapie

Scrapie was introduced to the United States from Canada and a considerable effort has been made to eliminate the disease by a "stamping-out" method. This would be quite impossible in Great Britain where the disease has been in evidence for over 250 years and where the losses from the disease are not heavy. The major loss is to one class of farmer, the pedigree sheep breeder, because he is prevented from exporting his animals to a number of countries. However, a large amount of research work is conducted in Great Britain on scrapie, not so much because of its economic importance as because of the peculiar nature of the infective agent. We may be on the threshold of far-reaching discoveries about infective material as yet undescribed.

Atrophic Rhinitis

Atrophic rhinitis was introduced to Great Britain with pigs from Sweden. Since then it has been found that a form of the disease already existed in the country. Steps have been taken to eradicate this infection. While abnormalities of the turbinate bones are not entirely uncommon, there is no evidence of a serious disease condition throughout the herd of pigs in the country. This is in contrast with the situation in America, where no such active steps are being taken against this condition.

Resuscitation of a Parakeet

Sidney J. MICHAEL, V.M.D.

A GREEN PARAKEET, 10 years old, was brought to my office because of a tumorous growth involving the entire digital tip of the right wing. The owner wanted the wing tip and tumor removed. The bird appeared to be in good health.

The region of amputation was denuded of feathers and 2 or 3 minims of a 1 per cent procaine solution was injected into and around the area. When I then turned away to pick up some instruments, my assistant who was holding the bird exclaimed, "The bird is dead." I took the bird in my hand and, to all appearances, it was completely lifeless. I lifted the bird to my ear and listened and I could hear its heart beat; the pulse was relatively full and normal.

Without much hope of reviving the bird, I performed manual artificial respiration with my index finger and thumb. Each exertion of pressure at the rate of about twice a second, caused the bird to emit a more or less natural squeak. I attached a small cup to the nipple on the resuscitator and turned the oxygen on to about 1 or 2 liters per minute and placed the head of the bird into the cup so that it would get a heavy concentration of oxygen, and continued the manual artificial respiration. After 2 or 3 minutes of this procedure, the bird still appeared to be dead but on auscultation the heartbeat was still audible. After about 5 to 10 minutes of administering oxygen and artificial respiration, I felt one foot take hold of my finger.

I withdrew the bird from the oxygen cup and observed a blinking of one eye. I continued resuscitation. After another minute or 2 the bird shook his head and wiggled his feet and legs. I observed a slight flexion and extension of the toes. At this time I also observed that breathing was normal, and artificial respiration was discontinued. I continued to give the bird concentrated oxygen. After a few more minutes, I observed that some degree of tone was coming back to the wings and to the neck and the bird started to lift his head and blink his eyes. He regained consciousness but his movements remained incoordinated.

No further treatment was administered. The bird was placed in his cage and within an hour was back on his perch, eating and drinking. The following morning the bird was up and about and as gay and chipper and friendly as he had been when he was first brought into my office.

Dr. Michael is a small animal practitioner in Erie, Pa.

Key Mineral Nutrients

of Concern in Veterinary Practice

G. BOHSTEDT, PH.D.

RESEARCH WORK during recent years has shown the need for proper levels of calcium and phosphorus and for a proper calcium-phosphorus ratio in farm animals.

In dairy regions, the growing of legume forage is almost axiomatic. These forages are rich in calcium but contain only a moderate amount of phosphorus. A desirable calcium-phosphorus ratio in a dairy ration is 1.0 to 1.5 parts calcium to 1.0 part phosphorus, or in actual amounts, about 0.37 per cent calcium and 0.28 per cent phosphorus, especially for high producing cows. Proportionately lower amounts of each would suffice for low producers or for beef cattle. But alfalfa has 6 times as much calcium (1.47%) as phosphorus (0.24%), and most of the clovers and other legumes have comparable amounts of the two minerals.

Effects of Excessive Intake of Calcium by Dairy Cattle

Considering the fact that most grains and protein concentrates making up dairy rations are better supplied with phosphorus than with calcium, the commonly fed balanced dairy rations are in a measure corrected, but still have a considerable excess of calcium over phosphorus. They do not, therefore, conform to the recommendation of the National Research Council[7] of 1.0 to 1.5 parts calcium to 1.0 part phosphorus. The surfeit of calcium then is aggravated by adding ground limestone or calcium carbonate to the grain mixture for dairy cattle.

Calcium-phosphorus ratios appear to have been studied with pigs more than with other livestock. It has been shown that a wide ratio detracts from their feed economy and weight gains (table 1).

TABLE 1—Widening Calcium-Phosphorus Ratios in Rations for Growing and Fattening Pigs Reduces Their Weight Gains and Feed Economy[2]

Ca/P ratio	Av. daily gain (lb)	Feed required for 100 lb. gain (lb.)	Ash content of 2nd ribs (%)
1.1*	1.45	391	56.4
1.4	1.28	403	55.4
1.7	1.22	415	55.0
2.0	1.17	416	54.4
2.3	1.07	430	54.6
2.6	1.04	429	55.2
2.9*	1.11	422	55.0

*Only 1 lot of pigs was fed each of these 1.1 and 2.9 Ca/P rations; up to 4 lots were fed the other rations.

With increasingly larger amounts of calcium, while holding the phosphorus at more or less constant levels, the rate and economy of gain declined, while calcification of bones, as gauged by the ash content of ribs, was affected relatively little.

The basal rations in these cases were corn, soybean oil meal, wheat middlings, alfalfa meal, and salt, to which were added varying amounts of ground limestone. The upper levels of ground limestone were fully 2 per cent of the finished ration.

It has been found by other investigators that high levels of calcium can interfere with assimilation of other minerals, particularly phosphorus. A calcium- phosphorus ratio of 2 to 1 or higher impairs the utilization of the phosphorus of phytic acid.[6] Many salts of calcium reduce the assimilation of iron while high ratios of calcium to phosphorus produce the same effect.[5] Too much calcium in the diet of chicks has been found to depress the assimilation of manganese, iodine, and zinc. This interference with assimilation is comparable to what

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goes on in the soil where excessive liming may reduce the amount of certain trace elements in forage crops.

In New Hampshire dairy heifers, it was found that the addition of 100 Gm. of pulverized limestone to various grass silage rations had a depressing effect on the digestibility of both protein and energy.[5]

Reducing the calcium level in rations of dry cows greatly reduced the incidence of parturient paresis after these cows freshened.[1] It was postulated that a high level of calcium in rations of cows that are drying off or are dry figuratively puts the parathyroid glands to sleep, thereby reducing the amount of blood calcium. When a freshened cow suddenly has a heavy demand for calcium in her milk, the "sleepy" parathyroids frequently cannot respond quickly enough, resulting in a blood calcium deficiency and parturient paresis.

In experiments with dry cows, California workers[1] used low-calcium rations, no legume forage, and no supplemental calcium in whatever grain mixture was fed. This ration kept the parathyroids active and responsive to sudden demands for calcium in the blood on freshening, resulting in decreased incidence of parturient paresis.

High calcium rations that are frequently fed to dairy cows do not benefit them. Such rations are a tribute to the cow's apparent ability to tolerate them. What harm is done from a depressing effect of excessive calcium on the absorption of other nutrients is not readily evident, but this undesirable effect has been proved.

Salt as a Nutrient, a Carrier, and a Regulator of Feed Intake

Salt (sodium chloride) is recognized by nutritionists and physiologists as a mineral of great importance, which regulates the water content of tissues, keeps the blood stream at the proper osmotic pressure, and plays an indispensable part in respiration and digestion.

Enough experiments have been conducted with all classes of farm animals to show that when salt has been withheld, these animals have reacted unfavorably. They showed slower gains, lowered feed efficiency, and debilitated health. A salt deficiency has repeatedly been incriminated as the cause of death. Many cases of depraved appetite, where cattle chew soil or wood or metal and where a mineral deficiency of some sort is suspected, amount to nothing more than a craving for salt.

As a constantly necessary ingredient of livestock rations, salt, whether fed mixed or free choice, is furthermore the most logical carrier of trace minerals, certain anthelmintics, and other principles that are commonly referred to as "additives" in livestock rations.

Salt in itself is not poisonous to animals gradually accustomed to large quantities of it and allowed constant access to water.

Cases of salt poisoning have been reported where under certain conditions pigs have had access to salted whey or meat-flavored brine, but not, that I know of, when fed dry feed as is done in self-feeding. Experiments have shown that when self-fed pigs were denied salt, and then suddenly exposed to heavily salted feed, either dry or soaked, just before feeding, or when after salt deprivation they were exposed to pile of salt, the pigs refused to overeat it. The pigs did not sicken, let alone die from excessive salt intake.

To simulate conditions that existed on some farms where pigs have been salt poisoned, pigs were slop-fed and salt withheld from feed. Troughs were used that were long enough for weanling pigs, but too short for larger pigs. Pigs were grown from weaning to market weights, thus creating keen competition for feed as the troughs increasingly became too short.

Then, 2.0 per cent of salt in the slop, which amounted to 8.0 per cent salt on a dry basis, was introduced. Each pigs ingested 3.2 oz. of salt the first day. This performance was repeated the next day without giving the pigs access to drinking water. Inaccessibility to water is an important factor, for the pigs could have diluted the large amount of salt in their digestive tracts and thus purged themselves

as an automatic and natural safety device. Several pigs were dead by the morning of the third day.[3]

These results do not mean that this amount of salt proved poisonous. Pigs have eaten several times as much and lived, even thrived.

At the Georgia Coastal Plains Experiment Station, Tifton, growing and fattening pigs have been fed as much as 16 per cent salt in their ration with out noticeably harming them. It was computed that pigs weighing 160 lb. and consuming at least 6 lb. of feed, ate 1 lb. (16 oz.) of salt a day for weeks at a time without apparent harm. But they had constant access to water.

Others have fed 8 per cent salt and 20 per cent salt safely in poultry rations, after gradually accustoming the poultry to these high levels and letting them have all the water they wanted.

In the range country, salt is used as a regulator of oil meal consumption during late summer or winter seasons when cattle are self-fed in a distant part of the ranch.[4] This practice saves considerable labor. A common proportion is 25 to 30 per cent salt mixed with 75 or 70 per cent cottonseed oil meal. The salt regulates the oil meal consumption to about 1 to 2 lb. daily per head, as desired.

This meant a daily salt consumption of 0.5 to 1.0 lb. for calves and yearlings and fully 1.0 lb. for beef breeding cows for months at a time. Cows produced and nursed calves satisfactorily under this kind of management. These amounts are of course several times, or even many times, the actual salt requirements of these animals, showing that salt *per se* is not poisonous.

It is considered important to accustom the cattle gradually to these large intakes of salt, and to have water available to them. The same principle applies to sheep that are satisfactorily self-fed in the same manner in many parts of the range country where distances are great and where labor saving is an important item. A number of experiment stations have reported favorably on this practice.

Whether the animals be pigs, poultry, cattle, or sheep, the actual amount of salt fed is not so much the crucial point as is the manner of feeding, whether the animals have become used to it, and whether they can drink water at will. In any event, where pigs on rations containing 1 or 2 per cent salt have died, care should be exercised before pronouncing these cases of salt poisoning.

It seems obvious that farm animals with salt constantly in their rations would be less likely to develop a keen craving for it and, therefore, would be less likely to consume excessive amounts of it and be hurt by it.

Addition of Trace Minerals

With reference to trace minerals, where the 2 expensive ones (iodine and cobalt) have been proved definitely needed, the question has been: Why not add the inexpensive but possibly helpful ones (manganese, copper, iron, and zinc) to make trace mineralized salt?

Work with manganese added to swine and cattle rations has not been entirely conclusive, but it has in a number of cases been helpful. In the sandy area of central Wisconsin, corn has responded to copper additions to the fertilizer. Might not animals in such areas likewise respond favorably to copper additions?

Zinc has been effective as a preventive and a treatment of parakeratosis in pigs when fed at the rate of from 50 to 100 p.p.m. of their ration.

Where no definite mineral deficiencies have been identified, many stockmen feel safer by fortifying rations with these trace minerals so that, if there are subclinical deficiencies in their particular area, added trace minerals would serve as cheap insurance.

Summary

Livestock rations that contain calcium greatly in excess of phosphorus have been found to depress the digestibility or availability of protein, phosphorus, iodine, iron, manganese, and zinc. These rations have depressed rate and economy of gain in swine.

Such rations when fed to dry cows have been found more likely to result in parturient paresis.

In most cows, it is more a matter of tolerating rather than utilizing, or benefiting from, large amounts of calcium in rations.

Salt in itself is not poisonous as attested by the unusually large amounts that have

been tolerated by cattle, sheep, swine, and poultry. Two important principles are that (1) animals gradually become accustomed to excessively large amounts of salt and (2) that they have access to water. Observing these principles has resulted in saving a considerable amount of labor, particularly in the range country, where salt is used in controlling the oil meal consumption by cattle and sheep that are self-fed.

In regions where trace mineral deficiencies have not been definitely established, many stockmen feel safer in using trace minerals either in premixes or in additives of trace mineral salt. They consider trace mineral use as low-cost insurance.

References

[1]Boda, J. M., and Cole, H. H.: The Influence of Dietary Calcium and Phosphorus on the Incidence of Milk Fever in Dairy Cattle. J. Dai. Sci., 37, (1954): 306-372.

[2]Bohstedt, G.: Calcium and Phosphorus in Rations for Swine. Proc. Cornell Nutr. Conf. for Feed Manufacturers J. 1955.

[3]Bohstedt, G., and Grummer. R. H.: Salt Poisoning of Pigs. J. Anim. Sci., 13, (1954): 933-939.

[4]Bohstedt, G., Cox, R. F., Cravens, W. W., Grummer R. H. Morrison, F. B., Smith, Ed F., and Smith, S. E.: Brochure: Salt in Animal Nutrition. Salt Institute, Chicago, Ill., 1957.

[5]Colovos, N. F., and Keener, H. A., (Reported by Keener): The Effects of the Level of Calcium on the Digestibility of Other Nutrients. Proc. Cornell Nutri. Conf. for Feed Manufacturers, (1953): 72-74.

[6]Mitchell, H. H.: The Mineral Requirements of Farm Animals. J. Anim. Sci., 6, (1947): 365-377.

[7]National Research Council, Committee on Anim. Nutr. Rep., Nutrient Requirements of Dairy Cattle, Publication 464, 1956.

Sodium Chloride Requirements of Dogs

The belief that the addition of sodium chloride to feeds is dangerous for healthy dogs is not justified. Sodium chloride is indispensible for prophylaxis and treatment of sodium chloride deficiency which occurs in cases of polydipsia due to various causes, and for treatment of continual vomiting, persistent diarrhea, and jaundice such as occurs with leptospirosis and adrenal insufficiency.

Restricted intake of sodium chloride is advisable in all cases of pathologic fluid retention such as ascites, inflammatory effusions, edema, oliguria, and anuria.—*Tierärztl. Umschau, 14, (1959): 363.*

An Unusual Source of Lead Poisoning

Two 9-month-old heifers showed typical clinical signs of lead poisoning which was attributed to lead ingested by chewing on a tape measure. The half-chewed tape measure had a residue of silvery threads after the organic matter had been calcined. These threads, when dissolved in nitric acid and tested with a solution of potassium iodide, gave a heavy precipitate of "golden spangles" of lead iodide. The heifers chewed about 2 feet of the tape.—*New Zealand Vet. J., 7, (1959): 142.*

Concentrations of Penicillin

in Milk Secretions and Blood Serums of Cows Following Intramammary Infusion of One or More Quarters

H. BLOBEL, D.V.M., PH.D.

IN A PREVIOUS paper,[3] concentrations and persistence of penicillin in milk of cows following intramuscular administration were described. In connection with the intramammary use of penicillin, the question of whether significant amounts of the antibiotic are transferred from treated to untreated quarters of the same cow has attracted considerable interest. Explicit published data regarding such a transfer and its mechanism are not available. Therefore, these studies have been undertaken.

Materials and Methods

Penicillin G crystalline, 100,000 and 300,000 units suspended in a water-in-oil emulsion* of neutral pH, was infused in 20-ml. doses into each quarter. In separate trials, 1, 2, or 3 corresponding quarters of 17 lactating Holstein-Friesian cows were infused. Three of these cows had chronic staphylococcic mastitis associated with extensive indurations in all quarters. The same 17 cows were used for all experiments, allowing sufficient time between trials for the complete elimination of the antibiotic from milk. Three additional lactating cows served as controls throughout the experiments.

Quarter milk samples were collected from all 20 cows. Milkings were started at 5 a.m. and 4 p.m. Blood samples were taken after each morning milking and shortly before each afternoon milking.

Fresh milk samples and blood serums were assayed for penicillin, employing the overnight cylinder-plate method as recommended by the Food and Drug Administration.[7] Rectangular Pyrex trays (19.0 by 30.5 cm.) covered with aluminum foil were used instead of Petri dishes.[2] The test organism was *Sarcina lutea* (ATCC 9341). The threshold sensitivity of the cylinder-plate method was approximately 0.0045 units of penicillin per milliliter of milk or serum.

In all tests, penicillin was identified by the use of penicillinase.

Results

Concentrations of penicillin in milk secretions and blood serums of cows following intramammary infusion of 1, 2, or 3 corresponding quarters with 100,000 units of penicillin per quarter were recorded (fig. 1). Penicillin persisted in the milk of treated quarters up to 120 hours. Transfer of penicillin from treated to untreated quarters occurred in the majority of the 17 cows used in each trial. Transfer occurred in 12 cows after infusion of the right front quarters; in 13 cows following infusion of the right front and left rear quarters; and in 14 cows subsequent to the infusion of the right front, right rear, and left rear quarters. Penicillin levels in milk samples from the untreated quarters of infused cows ranged from 0.005 to 0.010 units/ml. and were consistently lower than penicillin test levels in the corresponding blood serums. Penicillin was present in both up to 30 hours after treatment.

When, under similar experimental conditions, 300,000 units of penicillin per quarter was infused, measurable amounts of penicillin were transferred to the untreated quarters in all cases (fig. 2). Penicillin concentrations in milk from untreated quarters of the respective cows varied between 0.005 and 0.060 units/ml. Corresponding blood serum levels were again higher. While penicillin was demonstrable in milk secretions of treated quarters up to 120 hours after injection, it was eliminated from blood serums and untreated quarters within 36 hours following intramammary infusion.

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*H. P. Vehicle, Hamilton Pharmacal Co., Hamilton, N.Y.

At both dosage levels, a minute degree of direct diffusion of penicillin between the 2 quarters of one side occurred. Following treatment of the right front quarters, penicillin titers in milk samples of the right rear quarters were somewhat higher than those of the left rear and left front quarters. Similarly, when 3 quarters per cow were infused, penicillin levels were slightly higher in milk from 2 treated quarters on one side than in milk from the third injected quarters on the other sides of the mammary glands.

Some correlation between penicillin levels and yield of milk was observed; generally, penicillin persisted in the milk of low producers at higher concentrations for longer periods than in the milk of high producers.

Duration and concentrations of penicillin in the milk secretions and blood serums of the 3 mastitic cows were in the range of the average readings.

No inhibitors could be found in the milk secretions and blood serums of the experimental cattle before each trial or in those of the control cows throughout these studies.

Discussion

The data presented in this report indicate that the blood stream plays a major role in the transfer of penicillin from treated to untreated quarters of the same cow, following intramammary infusion. Direct diffusion of penicillin between quar-

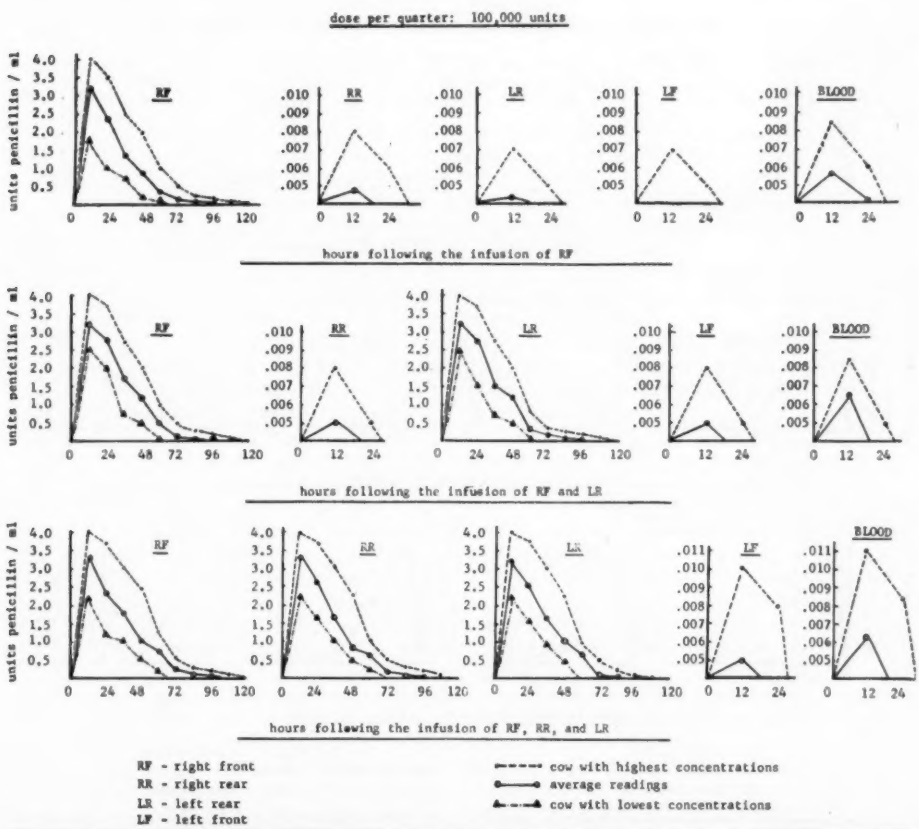

Fig. 1—Concentrations of penicillin in milk secretions and blood serums of 17 cows following intramammary infusion of 1, 2, or 3 quarters.

ters of one side apparently occurs, but only to a small extent.

The concentrations of penicillin transferred to the untreated quarters are measurable, in the majority of the cases, by the use of the cylinder-plate method. They would hardly be detectable with less sensitive screening procedures;[1,5,6] however, such small amounts of penicillin could pose a public health problem because of the potentiality of minute amounts of penicillin to cause allergic reactions in some individuals.[2,4,8]

The heat stability of penicillin as an allergen has been reported.[4] Boiling for 16 hours did not completely destroy its allergenic properties. In these studies, no significant reduction in penicillin activity was observed after pasteurization or boiling of milk samples for 5 minutes. Penicillin activity remained almost unaltered after storage at 4 C. up to 4 days.

Summary

Penicillin G crystalline suspended in a water-in-oil emulsion was infused, in separate trials, into 1, 2, or 3 corresponding quarters of 17 lactating cows.

Transfer of penicillin from the treated to the untreated quarters occurred at dosage levels of 100,000 and 300,000 units of penicillin per quarter. The blood stream was found to play a major role in this transfer. Concentrations of penicillin in

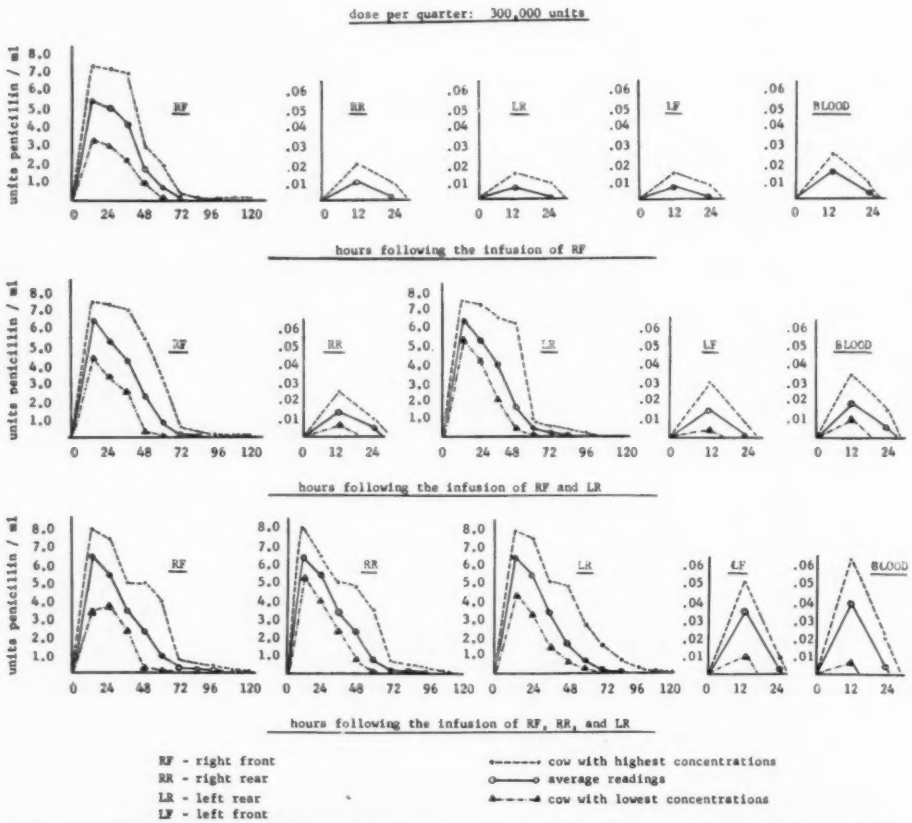

Fig. 2—Concentrations of penicillin in milk secretions and blood serums of 17 cows following intramammary infusion of 1, 2, or 3 quarters.

milk of untreated quarters were proportional to the total dose of infusion.

References

[1]Arret, B., and Kirshbaum, A.: A Rapid Disc Assay Method for Detecting Penicillin in Milk. J. Milk Food Tech., *22*, (1959): 329-331.

[2]Bierlein, K. J.: Repeated Anaphylactic Reactions in a Patient Highly Sensitized to Penicillin. Ann. Allergy, *14*, (1956): 35.

[3]Blobel, H., and Burch, C. W.: Concentrations of Penicillin in Milk of Cows Following Intramuscular Administration. J.A.V.M.A., *136*, (May 15, 1960): 447-480.

[4]Coleman, M., and Siegel, B.: Studies in Penicillin Hypersensitivity: II. The Significance of Penicillin as a Contaminant. J. Allergy, *26*, (1955): 253-261.

[5]Kosikowski, F. V., and Ledford, R. A.: Test for Antibiotics in Milk. J.A.V.M.A., *136*, (April 1, 1960): 297-299.

[6]Neal, C. E., and Calbert, H. E.: The Use of 2,3,5-triphenyltetrazolium chloride as a Test for Antibiotic Substances in Milk. J. Dai. Sci., *38*, (1955): 629.

[7]Tentative Methods for the Determination of Antibiotics in Milk. Mimeo. FDA, Washington, D.C., Rev. 1958.

[8]Zimmerman, M. C.: Penicillin Urticaria from Dairy Products, Proved by Penicillinase Cures. Arch. Dermatol., *79*, (1959): 1-6.

Scrapie, a Transmissible Hereditary Disease

The epidemiology of scrapie has been studied continuously over a 7-year period in 70 flocks in Britain in 10 breeds with 10,000 breeding ewes.

About 90 per cent of the potential cases of scrapie may be expected to occur before the sheep are 4½ years old. The median age in both sexes was 3 years.

Incidence among individuals with a close relative affected was found to be much higher than in individuals with no close relatives affected.

A pedigree derived from a sheep with 1 affected parent will often show a generation unaffected, but the disease usually appears again within 2 to 3 generations.

Scrapie among 232 sheep coded according to the performance of their parents showed that the disease followed a pattern of incidence expected of a hereditary disorder controlled by an autosomal recessive gene.

There apparently is a special bias toward the selection of individuals which have made exceptionally rapid growth in infancy and adolescence with particular development of the skeletal musculature. This fact is borne out by the fact that many show winners of high excellence have close relatives affected, have affected progeny, or may even manifest the disease later.

Since scrapie can be transmitted by inoculation, it is suggested that in the homozygous recessive individual, the transmissible scrapie agent is closely associated with the degenerative changes that develop in several organ systems. The transmissible scrapie agent has been demonstrated in many body organs, is self-replicating, and is unusually stable, even in the presence of heat and chemical agents. Immunologic tests commonly associated with virus infections are of no use in scrapie.

It appears that scrapie may be an hereditary disease of unusual type in which the undesirable effects of the genotype are mediated through a positive factor, probably chemical in nature, which does not provoke the immune responses usual with self-replicating microbial infections.—*Nature, 185, (1960): 441.*

Simplified Apparatus and Method for

Administering Oxygen and Ether

to the Dog

Nicholas H. BOOTH, D.V.M., PH.D.
A. D. RANKIN, D.V.M., M.S.
Donald H. WILL, B.S., D.V.M., M.S.

SINCE the elaborate equipment used for administering volatile anesthetics to man has been too costly for general veterinary use, intravenous preparations have been favored by many veterinarians. In an effort to secure inexpensive equipment suitable for administering a volatile anesthetic to animals safely and effectively, an apparatus was devised to mix oxygen and ether. This equipment also permits oxygen to be administered alone for resuscitation. Additional modification might allow it to be used to administer bromochlorotrifluoroethane.*

Technique for Administering Oxygen and Ether

During the past 9 years, this laboratory has used the oxygen-ether apparatus (fig. 1) or its equivalent on several hundred dogs in the instruction of students in physiology and pharmacology. Although the apparatus has been used principally for administering an oxygen-ether mixture to the dog, it has had limited use in the other species. Also, the device has been used to administer oxygen during thoracic surgery following barbiturate anesthesia in pigs, calves, dogs, and cats.

The apparatus is easily operated and its use eliminates the wasteful administration of ether by the open drop and semi-open methods. The oxygen is bubbled through a water bottle which serves as an inexpensive flow-meter, the rate of bubbling indicating relative rate of flow; it then is bubbled through the ether to volatilize it and provide a higher ether concentration. Oxygen** prevents hypoxia and is readily available for resuscitation in the event of respiratory depression or arrest.

Ten to 15 minutes prior to anesthetizing the dog (preferably after food has been withheld), atropine sulfate (0.02 mg./lb. body weight) should be administered subcutaneously or intramuscularly to prevent salivation and mucus secretion in the respiratory tract.[4] This preanesthetic treatment also reduces the possibility of cardiac arrest from vagovagal reflexes,[3,5] possible ventricular fibrillation,[1] and adduction of the vocal cords of the larynx.[2] Use of atropine or scopolamine is recommended regardless of the anesthetic agent selected.

Thiopental sodium or thiamylal sodium† is given intravenously in sufficient dosage to permit endotracheal intubation. The dog is intubated with an endotracheal catheter equipped with an inflatable cuff. This tube is then connected to the anesthetic apparatus prior to administering oxygen, ether, or both. In many instances, ether is not required for several minutes following the thiobarbiturate anesthesia. However, the anesthetic bag is filled with oxygen and

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Approved by Colorado State University for publication as scientific series No. 635.

*Bromochlorotrifluoroethane is marketed as Halothane by Fort Dodge Laboratories, Fort Dodge, Iowa, and as Fluothane by Ayerst Laboratories, New York, N. Y.

**Oxygen, U.S.P., was supplied through the courtesy of Linde Air Products Co., New York, N. Y., during the development of the equipment.

†Thiopental sodium used in this study was Pentothal sodium manufactured by Abbott Laboratories, North Chicago, Ill.; thiamylal sodium, Surital sodium, Parke, Davis and Co., Detroit, Mich.

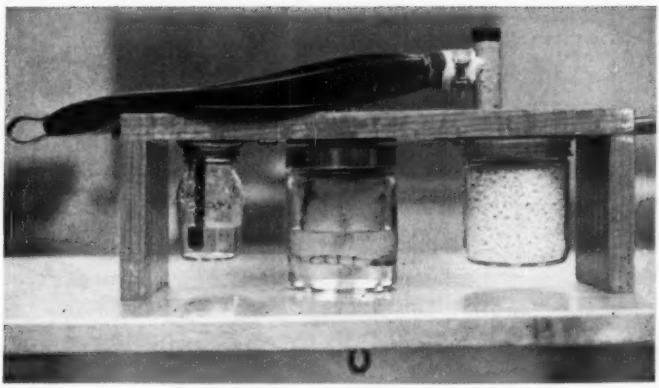

Fig. 1—Oxygen-ether apparatus is constructed of inexpensive materials.

the animal breathes in and out of the bag through a carbon dioxide absorber. As the thiobarbiturate anesthesia lightens, ether is mixed with oxygen to maintain the desired level of anesthesia. In this manner, the dog remains oxygenated and the desired plane of anesthesia is maintained. It is essential to minimize the "dead-air" space of the endotracheal catheter to prevent accumulation of carbon dioxide. To avoid constriction of the air passage, the endotracheal catheter size should be the largest that can be introduced without trauma to the vocal cords and trachea. The tube length from the mouth of the dog to the anesthetic apparatus should not exceed 15 cm. (fig. 2). The catheter tip must remain anterior to the tracheal bifurcation to avoid obstruction of the right or left bronchus. The anesthetic bag should be kept filled to one half its total volume, and should never be distended excessively with oxygen or with the oxygen-ether mixture, because the back pressure will restrict respiration. Oxygen, in spite of many misconceptions, can be safely used at the 100 per cent level for a few hours without danger of alveolar damage or oxygen poisoning.[2]

If respiratory depression or arrest occurs, the anesthetic bag containing the oxygen-ether mixture can be emptied by detaching and compressing it. It is then attached and refilled with oxygen only. With manual compression of the bag, the lungs can be "washed out" and the ether concentration in the lungs and blood can be lowered quickly. This technique decreases the depth of anesthesia rapidly so that respiration can be restored.

Soda lime‡ (indicating grade, mesh No. 4) is used to absorb carbon dioxide from the expired air. If a dog shows labored or dyspneic respiration, exhaustion of the

‡Available as Sodasorb from W. R. Grace and Co., Dewey Almy Chemical Division, Cambridge, Mass.

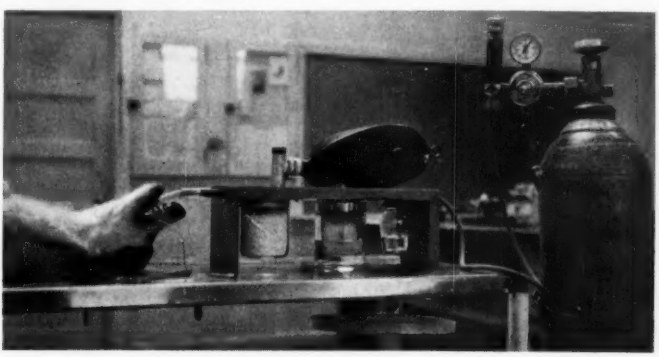

Fig. 2—Oxygen-ether apparatus is connected close to animal to avoid excessive "dead-air" space.

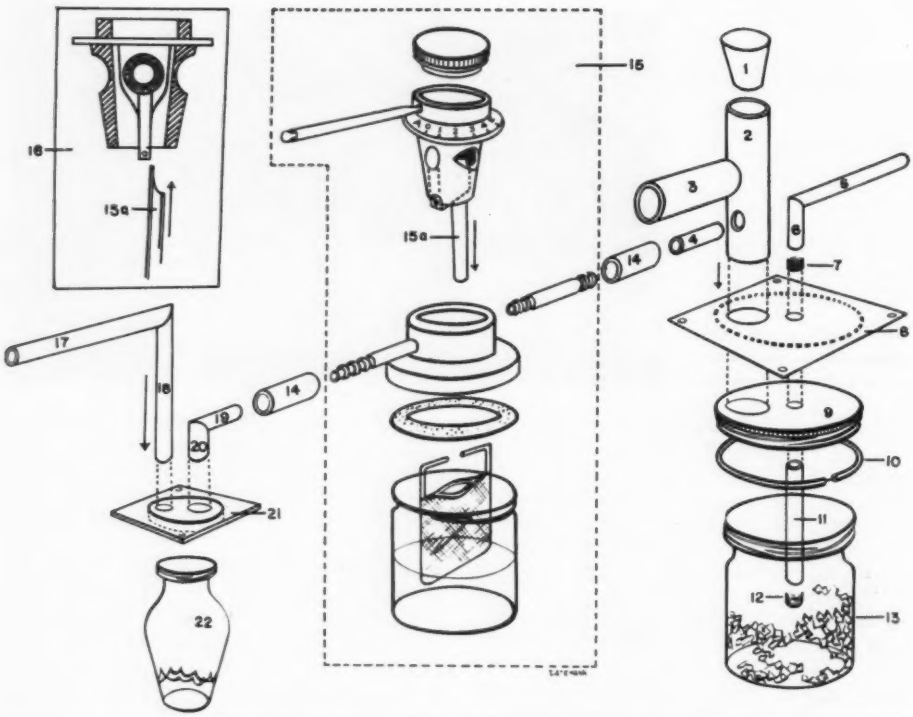

Fig. 3—Diagram shows parts of oxygen-ether apparatus.

(1) rubber stopper; (2) metal tube 2¾ inches long, 15/16 inch o.d.; (3) metal tube, 1½ inches long, 15/16 inch o.d., soldered to No. 2; (4) copper tubing, 1¼ inches long, ½ inch o.d., soldered to No. 2; (5) copper tubing, 4 inches long, ½ inch o.d.; (6) copper tubing, 1 inch long, ½ inch o.d., soldered to No. 5; (7) fine wire mesh; (8) metal plate with holes for tubes and wood screws, 4 inches by 4 inches; (9) jar lid, 3½ inches o.d.; (10) rubber gasket; (11) tygon tubing, 3 inches long, ½ inch o.d.; (12) fine wire mesh; (13) soda lime glass jar, 3½ inches high, 3 inches i.d.; (14) 2 tygon connecting tubes, 1 inch long, ½ inch o.d.; (15) the Joseph Becker ether valve and glass jar; (15A) copper tube for bubbling oxygen through the ether; (16) cross-section view of valve mechanism showing modification with copper tubing numbered 15A (4 inches long, 5/16 inch o.d.) inserted into 1 side of valve — plaster of Paris is used instead of solder to seal space around copper tubing at junction of valve mechanism; (17) copper tubing, 3 inches long, 5/16 inch o.d.; (18) copper tubing, 4 inches long, 5/16 inch o.d., soldered to No. 17; (19) copper tubing, 1 inch long, ½ inch o.d.; (20) copper tubing, 1 inch long, ½ inch o.d., soldered to No. 19; (21) metal plate soldered to jar lid (2 inches by 2 inches) with holes for tubes and wood screws; (22) glass jar for water, 3½ inches high.

o.d.—outside diameter, i.d.—inside diameter

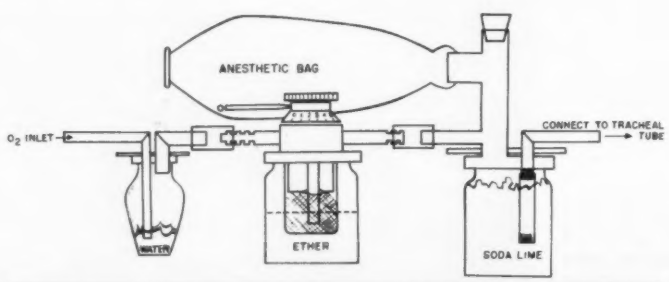

Fig. 4—Diagram shows general assembly of oxygen-ether apparatus.

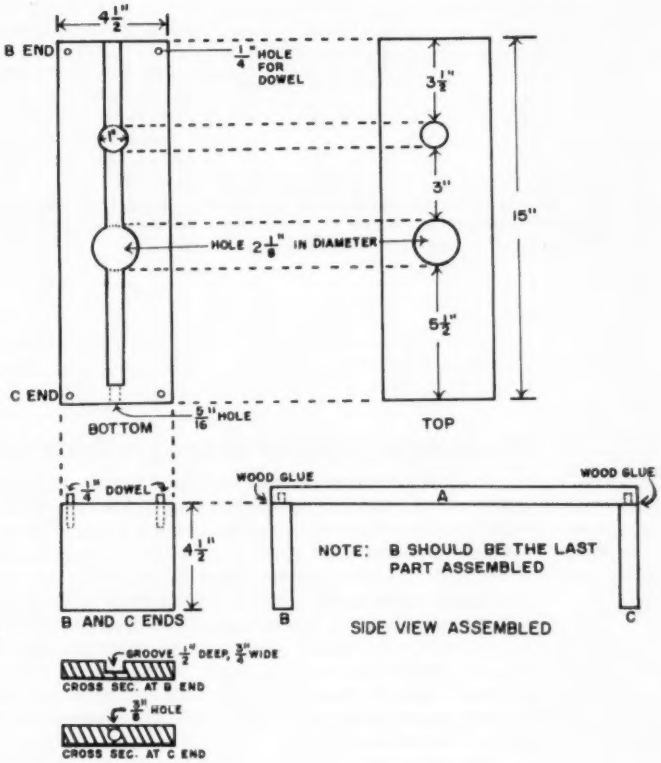

Fig. 5—Diagram shows a method by which a hardwood frame for oxygen-ether apparatus may be assembled.

soda lime should be suspected and immediately checked; the indicating grade of soda lime contains ethyl violet which changes color from white to violet when saturation with carbon dioxide occurs. Even if the soda lime is exhausted, the mucus membranes of the dog remain pink since the oxygen supply is usually adequate; membrane color changes would not be seen until cardiac failure occurred. Labored and rapid respiration may also be seen when the dog is in stage 2 of anesthesia (delirium or excitement stage)[4] and should not be confused with gasping or hypercapnia.

*The ether valve is available through the Joseph Becker Manufacturing Co., Inc., 657 Union Blvd., Totowa Borough, N. J. Breathing or anesthetic bags (2.75 liter capacity) and Tygon tubing can be obtained from Aloe Scientific, 3800 N. Dahlia St., Denver 7, Colo. The oxygen tank regulator and flow-meter combination valve can be purchased from Puritan Compressed Gas Corp., 2021 Grand Ave., Kansas City, Mo.

Construction of Apparatus

Diagrams (fig. 3, 4, 5) show the parts,* dimensions, and general assembly of the oxygen-ether apparatus. Additional parts used in constructing the apparatus were: discarded maraschino cherry, olive, and peanut butter jars, including their lids. The copper tubing and oak wood were obtained from the local hardware and lumber companies.

Summary

Construction of an inexpensive anesthetic apparatus is described; it has been successfully used on several hundred dogs and other species during the past 9 years in the instruction of students in physiology and pharmacology. It has been used to administer an oxygen-ether mixture for anesthesia, oxygen for resuscitative purposes, and oxygen during thoracic surgery under

barbiturate anesthesia. The apparatus is easily operated, reduces the hazards and waste of ether administration by the open drop and semi-drop methods, and greatly increases anesthesia control.

References

[1]Booth, N. H., Will, D. H., Moss, L. C., and Swenson, M. J.: An Electrical Apparatus and Its Application in Defibrillating the Heart of the Dog. J.A.V.M.A., 132, (Feb. 1, 1958): 117-122.

[2]Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics. 2nd ed. MacMillan Co., New York, N.Y., 1955.

[3]Hinchey, P. R.: Cardiac Arrest—The Most Important Disaster in the Operating Room. Arch. Surg., 74, (1957): 365-380.

[4]Jones, L. M.: Veterinary Pharmacology and Therapeutics. 2nd ed. Iowa State College Press, Ames, Iowa, 1957.

[5]Reid, L. C., Stephenson, H. E., Jr., and Hinton, J. W.: Cardiac Arrest. Arch. Surg., 64, (1952): 409-420.

Physiologic Response of Cows to Epinephrine

Following subcutaneous administration of 40 ml. of epinephrine (1:1,000) to nonlactating dairy cows, blood serum calcium levels were elevated as much as 0.5 mg./100 ml. to a maximum of 1.5 mg./100 ml. within 6 to 9 hours. Serum inorganic phosphorous levels declined from 5.3 mg./100 ml. to 3.6 mg./100 ml. during the same period. Concentration of urinary calcium was increased 2 to 3 times that of the initial concentration, while the urinary inorganic phosphorus concentration was approximately doubled during the same period. Blood sugar levels were increased 2 to 3 times or more. Rates of urinary excretion of reducing sugar were increased to 3 or more times those of the pre-administration level.

Intravenous injection of 5 ml. of epinephrine (1:1,000) was followed 10 minutes later by a 0.5 mg./100 ml. drop in serum calcium, while serum inorganic phosphorus concentration declined 0.56 mg./100 ml. within 3 hours after injection. Blood sugar levels following intravenous injection of 5 ml. of epinephrine was more than doubled within 10 minutes. The heart rate was doubled within 6 hours following subcutaneous injections, while average respiration rate increased from 27 to 45 respirations per minute. Body temperatures remained constant.—*J. Anim. Sci., 18, (1959): 1546.*

Sodium Propionate and Glycerin Used in Ketosis Therapy

Treatment with glycerin (250 Gm. by mouth daily for 4 days) was reported in Denmark to have resulted in recovery of 70 per cent of cows treated for ketosis. Similar results were obtained with 150 Gm. of sodium propionate daily for 4 days. Repeating the treatment increased the proportion of recovery to 93 per cent. Simultaneous injection of insulin did not help. Forty per cent of control cows recovered from ketosis without treatment.—*Proc. 8th Nord. Vet. Cong., (1958): 350; abstr. 3926 in Vet. Bull., 29, 1959.*

Thiopental Sodium

Anesthesia in the Horse

— *A Rapid Induction Technique*

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L. JOHNSON, B.S., D.V.M.
C. D. HEINZE, D.V.M.

THE INDUCTION of general anesthesia in the horse should be rapid, safe, smooth, and accomplished without excitement and with a minimum of restraint. Such requisites are more easily achieved by using preanesthetic sedation, which makes induction more smooth, reduces or abolishes induction and emergence excitement, facilitates the maintenance of an even depth of anesthesia, and reduces the amount of general anesthetic required. The duration of the recovery stage may, however, be prolonged when preanesthetic sedatives are used.

If a general anesthetic is to satisfy the necessary requisites for induction, there are good reasons for selecting an agent which can be administered by the intravenous route. Smooth induction is facilitated if it is given as fast as is compatible with safety.

When using intravenous barbiturates, the speed of induction and the duration of the anesthesia both depend on the rate of injection of the anesthetic. The dose required for induction of anesthesia by rapid intravenous injection is much smaller than that normally used.

When injection is made slowly, the barbiturate is taken up by the tissues (particularly fatty tissues) so that the concentration reaching the brain in the circulating blood is diminished. However, rapid injection leaves little time for migration of the barbiturate into the tissues, and consequently the concentration reaching the brain is relatively higher.

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Thiopental sodium used in this study was supplied as Pentothal Sodium by Abbott Laboratories, North Chicago, Ill. The authors thank Abbott Laboratories for support of the work reported.

If no additional anesthetic is administered following rapid induction, the concentration in the brain falls rapidly due to the distribution of the anesthetic from the brain to other tissues. Following slow induction, redistribution of the anesthetic from the brain to other parts of the body occurs more slowly, and the duration of the anesthesia is therefore more prolonged.

Intravenous anesthetics which have been used for the rapid induction of general anesthesia in the horse include thiopental sodium and thialbarbitone sodium. Use of thiopental sodium has been reported in South Africa, where it was recommended (administered by rapid intravenous injection) for the castration of horses. Dosage was 3 Gm. of thiopental sodium in 20 cc. of water.[5] This anesthetic procedure caused the horse to fall rapidly to the ground in a state of deep narcosis. Operations could then be performed under local anesthesia or under general anesthesia induced by the subsequent inhalation of chloroform. The horse was able to rise again in 20 to 30 minutes after the initial injection, but it was found necessary to maintain restraint for approximately 20 minutes. It was emphasized[5] that no attempt should be made to stimulate the horse to rise until full consciousness was regained.

Others have administered thiopental sodium in a similar manner.[1-3,6,7] One worker[6] injected 4.5 to 6.5 mg. of the drug per pound of body weight during a period of 5 to 10 seconds. The horse stiffened 15 to 20 seconds after the injection, subsided on its haunches and rolled to its side in a position of lateral recumbency. There was no induction excitement, but there was a brief period of apnea of 10 to 30 seconds' duration. With the exception of the jaw

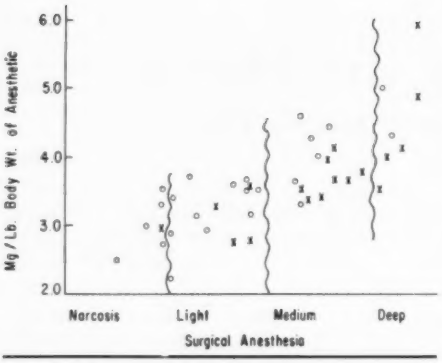

Fig. 1—Relation of depth of anesthesia to dosage, using two barbiturates, in the horse. x = thiopental sodium; o = thiopental sodium and pentobarbital sodium.

and periocular muscles, relaxation was good.

The duration of anesthesia thus achieved varied from a minimum of 2 to 3 minutes to a maximum of 22 minutes and the horse was able to regain its feet in 20 to 60 minutes from the time of injection. However, others[3,8] have reported undesirable struggling during emergence from this type of anesthesia. Emergence struggling was also observed when using thialbarbitone sodium in a similar manner.[5]

It would seem that the short-acting barbiturates such as thiopental sodium, or thialbarbitone sodium offer many advantages for the induction of surgical anesthesia of short duration in the horse. Yet they have the disadvantage that emergence struggling is frequently encountered. Consequently, restraint of the horse during recovery from the anesthetic is imperative.

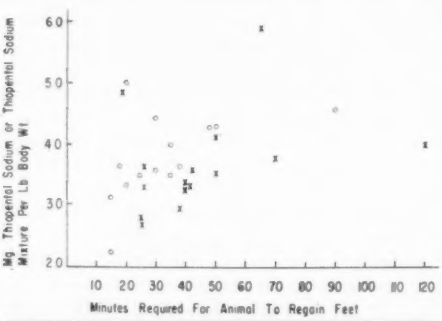
Mg. Thiopental Sodium or Thiopental Sodium Mixture Per Lb Body Wt
60
50
40
30
20
10 20 30 40 50 60 70 80 90 100 110 120
Minutes Required For Animal To Regain Feet

Fig. 2—Relation of recovery time from anesthesia to dosage, using thiopental sodium and a combination of thiopental sodium and pentobarbital sodium. x = thiopental sodium—mean duration 45.8 minutes, range 19-120 minutes, o = thiopental sodium and pentobarbital sodium—mean duration 33.5 minutes, range 15-90 minutes.

Because preanesthetic sedation reduces emergence excitement, it would seem desirable to attempt to reduce or even abolish emergence struggling by preanesthetic sedation. Tranquilizing drugs, when used prior to the induction of anesthesia in small animals, have been reported to reduce not only the amount of anesthetic required, but also the emergence excitement. However, in large animals, when tranquilizers are used in conjunction with intravenous anesthetics, prolongation of the ataxic stage during recovery has been observed.[8]

In this series of cases, promazine hydrochloride* (0.25 mg./lb. of body weight) was administered intravenously as a preanesthetic sedative. This drug does not depress the respiration and does not cause ataxia, but does provide a suitably relaxed and tranquil patient.

Fifteen to 30 minutes after tranquilization, thiopental sodium or a thiopental sodium and pentobarbital sodium mixture** was injected intravenously in 20 to 40 cc. of sterile distilled water. After the rapid intravenous injection of the anesthetic, the horse stood quietly for a few seconds, took one or two deep breaths, sank backward on its haunches, fell over on its side, and lay quietly without movement.

As soon as the horse fell, it usually took one or two breaths followed by a brief period (15 to 45 seconds) of apnea. Breathing then recommenced although there was some tendency for it to be irregular in depth, a characteristic frequently observed during barbiturate anesthesia in the horse.[4]

If the dose of anesthetic used was greater than 3 mg./lb. of body weight, surgical anesthesia was usually induced. This could be recognized by the absence of response to skin stimulation, by the character of the eye reflexes, by relaxation of the anal sphincter, and by depression or absence of the anal sphincter reflex. The palpebral reflex in horses under this type of anesthesia was usually more obvious; the horse might blink even though nystagmus was absent

*Sparine is produced by Wyeth Laboratories Inc., Philadelphia, Pa.

**1 Gm. of the thiopental sodium and pentobarbital sodium mixture contained 750 mg. of the former and 250 mg. of the latter, and was supplied as Combuthal by Abbott Laboratories, North Chicago, Ill.

and there was no reaction to painful stimuli.

Relaxation was good and minor surgical procedures could be carried out without the application of ropes to restrain the animal.

The duration of surgical anesthesia obtained by this rapid induction technique was 3 to 14 minutes, and the horse usually regained its feet in 20 to 50 minutes after the initial injection. Recovery was quiet, without emergence struggling or excitement.

To date at least 43 horses have been anesthetized by this technique. In 19 of these, thiopental sodium alone was used; in the remainder, a thiopental sodium-pentobarbital sodium combination was used. While no effort was made to assign horses randomly to each group, it is hoped that the results reported will provide sufficient information to permit other clinicians to utilize this technique. This method of inducing anesthesia of short duration was used for minor surgical procedures such as castration, application of plaster casts, excision and repair of wounds, and preparatory to the maintenance of anesthesia by inhalation techniques.

The horses ranged in age from 1 month to 14 years and in weight from 65 to 1,375 lb. With the exception of 3 horses, induction was smooth, rapid, and occurred without struggling. In one case, in which the solution of thiopental sodium was prepared three days prior to injection, induction was incomplete and unsatisfactory. In 2 other horses in which the rate of injection was less rapid, momentary paddling of the limbs occurred before induction was complete.

The dose of thiopental sodium required to produce surgical anesthesia ranged from 2.74 to 5.90 mg./lb. of body weight (mean — 3.74 mg./lb.). The dose of 5.90 mg./lb. was administered at a slightly slower rate than usual to a 1-month-old Shetland pony.

The dose of thiopental sodium-pentobarbital sodium mixture was similar, ranging from 2.23 to 5.00 mg./lb. of body weight (mean — 3.64 mg./lb.). Again, high dose rates of 4.58 and 5.00 mg./lb. of body weight were used to induce anesthesia in Shetland ponies less than 1 year old.

The degree of surgical anesthesia obtained varied from light to deep. It appeared that it required slightly less thiopental sodium than the mixture to produce the same degree of surgical anesthesia. The duration of surgical anesthesia ranged from 3 to 14 minutes when either thiopental sodium alone or in combination with pentobarbital sodium was used, although it appeared that the duration of surgical anesthesia was less when thiopental sodium alone was used.

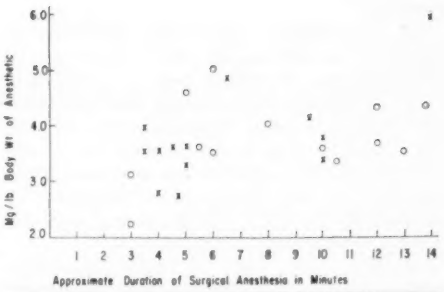

Fig. 3—Relation of anesthesia duration to dosage of the barbiturates. x = thiopental sodium—mean 6.5 minutes, range 3.5-14.0 minutes; o = thiopental pentobarbital mixture, mean 8.3 minutes, range 3-14 minutes.

Recovery (the time required for the horse to regain its feet after initial induction) ranged from 15 to 120 minutes. The horses never were stimulated to rise, but were allowed to do so of their own accord; 73 per cent were able to stand in 20 to 50 minutes. Again, 2 Shetland ponies less than 1 year of age were responsible for the more prolonged recovery periods (65 and 90 minutes). The longest recovery period of 120 minutes was observed in a horse upon which a large plaster cast was applied to a hind leg. It was our opinion that this cast prolonged the period of postanesthetic recumbency.

In addition to those already discussed, respiratory complications occurred in 2 horses. In 1 horse suffering from an esophageal obstruction, excessive manipulation within the pharynx and esophagus caused a laryngeal spasm which required relief by endotracheal intubation. In the other, endotracheal intubation under light surgical anesthesia caused reflex inhibition of the respirations when the cuff of the tube was inflated. Respirations were initiated by the intravenous injection of the central nervous system stimulant pentylenetetrazol.*

*Metrazol was supplied by Knoll Corp., Orange, N. J.

Summary

1) A technique for rapid induction of surgical anesthesia of short duration in the horse has been described.

2) Preanesthetic sedation was produced by the intravenous administration of 0.25 mg. of promazine hydrochloride per pound of body weight, after which anesthesia was induced by the intravenous injection of thiopental sodium or a thiopental sodium-pentobarbital sodium mixture.

3) The mean dose of these anesthetics when used to produce surgical anesthesia was 3.74 mg./lb. for thiopental sodium and 3.64 mg./lb. for thiopental sodium-pentobarbital sodium mixture.

4) The mean duration of surgical anesthesia and of the recovery period using these two agents was 6.5 and 45.8 minutes, respectively, when thiopental sodium was used, and 8.3 and 33.5 minutes when the mixture was administered. This difference was not significant statistically.

5) The anesthesia achieved by this technique was easily and rapidly induced, restraint was not required, and recovery was rapid and occurred without emergence excitement or struggling.

References

[1]Belonje, C. W. A.: The Use of Intraval Sodium in Horses. J. South African Vet. M. A., 20, (1949): 142.

[2]Ford, E. J. H.: Some Observations on the Use of Thiopentone in Large Animals. Vet. Rec., 63, (1951): 636.

[3]Henderson, W. M., and Brooksby, J. B.: Thiopentone as an Anesthetic in the Horse. Vet. Rec., 62, (1950): 38.

[4]Jones, E. W.: The Administration of General Anesthetics to the Horse and Ox. J.A.V.M.A., 127, (Dec., 1955), 484.

[5]Jones, L. Meyer: Veterinary Pharmacology and Therapeutics. 2nd ed. Iowa State College Press, Ames, Iowa (1957): 169.

[6]Longly, E. O.: Thiopentone (Pentothal Sodium) as a General Anesthetic in the Horse. Vet. Rec., 62, (1950): 17.

[7]Waddington, F. G.: Thiopentone as an Anesthetic in the Horse. Vet. Rec., 62, (1950): 101.

[8]Wright, J. G.: Veterinary Anesthesia. 4th ed. Williams and Wilkins, Baltimore, Md. (1950): 207.

Antibiotic Supplements Aid Development of Resistant Coliform Organisms

The penicillin type of resistance pattern was found among members of the *coli-aerogenes* group of organisms when they were exposed to concentrations of oxytetracycline usually recommended for supplementation of swine rations. In a 12-week study with experimental swine that were given rations supplemented with oxytetracycline, 52 strains of the *coli-aerogenes* group developed resistance to 75 units per milliliter or greater. Since normal sensitivity of this group is 0.6 to 2.5 units per milliliter, there is little doubt that new genotypes were developed in the intestinal tracts of these swine.

The effect of antibiotic supplementation seems to permit evolution of resistant mutants in specific genera rather than to eliminate undesirable or toxigenic types of bacteria from the flora. The practice of supplementing feed with antibiotics will have to be considered in the light of the ever-increasing production of resistant bacterial populations.—*Canad. Vet. J., 1, (1960): 144.*

Animal Cage Provides Effective

Oxygen and Inhalation Therapy

Joseph M. STOYAK, V.M.D.
Alexander R. EVANS, V.M.D.

OXYGEN THERAPY equipment is attaining growing recognition as an important tool in the armamentarium of the veterinary practitioner. With today's trend toward piped oxygen in animal hospitals, application of the latest oxygen and aerosol therapy techniques has become practical.

For example, at the Rowley Memorial Hospital, we are using our recently installed piped oxygen system in combination with an iced oxygen tent and a specially constructed oxygen therapy cage. In use for the past year, the cage has been found effective in scores of cases including shock syndrome, heat prostration, and cardiac and respiratory conditions.

The cage has a height, depth, and length of 30 inches. A ¼-inch Plexiglas cover fits over the wire mesh on the cage door and is held in place with 4 twist clips to form a seal that will permit maintenance of effective oxygen concentrations within the cage. The door is equipped with a refrigerator-type door seal.

Four half-inch holes were drilled in the cage bottom to vent carbon dioxide that accumulates. Cage size allows accommodation of a large dog such as a 90-lb. Boxer or Collie. A partition makes it possible to treat 2 smaller animals simultaneously.

Oxygen from the piping system is supplied through a wall outlet located adjacent to the cage. The piping system, which provides both oxygen and vacuum service, was built into the recently constructed surgical and recovery wing of the hospital. A hose connected to the outlet carries the gas to an iced oxygen tent* mounted on the side of the cage.

The iced oxygen tent contains a built-in nebulizing unit, to provide humidity, and is equipped to give maximum or decreased cooling with either full, partial, or no nebulization. It can provide aerosolized antibiotics, bronchodilators, mucolytic detergents, or enzymatic agents when they are prescribed. The outer cabinet and inner iced chamber, which has a 17-lb. capacity, was constructed from stainless steel. At a flow rate of 6 liters per minute (l.p.m.), oxygen

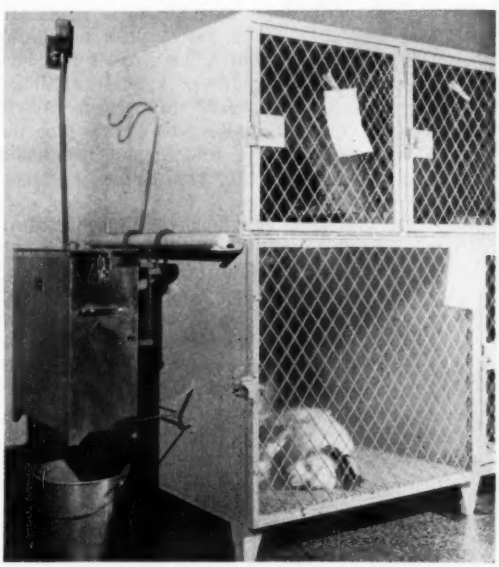

Fig. 1—Oxygen therapy cage has Plexiglas cover held over wire mesh by twist clips. Oxygen and aerosolized materials are furnished by stainless steel iced oxygen tent mounted on the side of the cage. Oxygen is furnished by piped oxygen system through the wall outlet (upper left). The cage can accommodate a large dog such as a 90-lb. Boxer or Collie.

From the Rowley Memorial Animal Hospital, Springfield, Mass.

The authors acknowledge the assistance of Paul Baillieul, operating room supervisor, who was instrumental in development of the cage.

*Model 24300, National Cylinder Gas, Division of Chemetron Corp., Chicago, Ill.

concentrations of over 40 per cent can be maintained within the cage. Temperature within the cage is kept at approximately 75 F. By cutting the recirculation of the oxygen through the tent, the temperature within the cage can be increased.

In practice at our hospital, detergent nebulization was provided during many treatments with oxygen therapy. The cage has enabled dramatic results in aiding recovery of animals regarded as being in the terminal stages of severe respiratory disease.

Dogs with diaphragmatic hernia have responded favorably to treatment, utilizing the oxygen therapy cage. The cage allows the dog to survive on a greatly reduced area of lung capacity while preparations for surgery are being carried out.

In cases where aerosol therapy is desired without the use of oxygen, we use a portable pressure pump** with a nebulizer which can be readily adapted to any of our hospital cages for use in the ward.

Case Histories

Case 1.—A male Dachshund, 2 years old and weighing 25 lb., fell from a boat into the shallow water of a lake. After recovering the dog, the owner applied artificial respiration and rushed him to a veterinarian. The diagnosis was shock and inhalation pneumonia, and a poor prognosis was given. Two other practitioners offered the same prognosis.

On arrival at our hospital, a resuscitator was used to aid in emptying the water from the lungs. The dog was then placed in the oxygen therapy cage and oxygen at a flow rate of 10 l.p.m. was administered for 48 hours. A mucolytic detergent was nebulized into the cage for 1-hour periods 3 times daily, along with systemic proteolytic enzyme† therapy for the first 4 days. Broad-spectrum antibiotics were also administered. After the fourth day, fever and dyspnea subsided and inhalation therapy was discontinued. Antibiotics were administered for an additional 3 days, and recovery was uncomplicated.

Case 2.—A male cat, 3 years old and weighing 7 lb., was admitted to the hospital with dyspnea of 2 days' duration. Other clinical signs included a body temperature of 104.5 F., severe coughing, nasal discharge, and moist râles. A diagnosis of bronchial pneumonia was made. The cat was placed in the oxygen therapy cage, and detergent‡ was nebulized with oxygen at a flow rate of 5 l.p.m. for 24 hours. Intermittent oxygen treatment followed, with nebulized detergent administered twice a day for 1-hour periods during the next 3 days. In addition, the cat was given penicillin-dihydrostreptomycin medication intramuscularly every 12 hours. Its temperature returned to normal after 48 hours and breathing became easier. The cat recovered and was discharged after 6 days of hospitalization.

Case 3.—After being in the sun on a hot day for 3 or 4 hours, a male Boxer, 2 years old, weighing 55 lb., was presented for examination with a body temperature of 108 F. The dog was in a state of collapse, with rapid shallow respiration, marked tachycardia, and cyanotic mucous membranes. The diagnosis was heatstroke.

The dog was given 20 mg. of hydrocortisone intravenously and placed in a cold water bath for 10 minutes. Respiration was still labored when the dog was placed in the oxygen therapy cage set at a temperature of 75 F. The oxygen flow rate was 10 l.p.m. Dyspnea was relieved within 2 hours after placement in the cage and the dog was removed from the cage 8 hours later. He recovered and was discharged 2 days later.

Case 4.—A male Wire-Haired Fox Terrier, 6 years old and weighing 18 lb., had a record of progressive dyspnea for 2 months, when referred to the surgery department by a veterinarian who had made a diagnosis of intrathoracic tumor.

Prior to surgery, the dog was maintained in the therapy cage where his ability to breathe improved. The dog was prepared for thoracic surgery and an incision was made through the right side of the chest wall, including resection of the ninth rib. Two large masses, later identified as hyperplastic thymus gland, were removed. They weighed 400 Gm. After routine chest closure, the dog was placed in the oxygen therapy cage and given oxygen at a flow rate of 6 l.p.m. for 12 hours. An uncomplicated recovery followed.

Case 5.—A male Fox Terrier, 10 years old and weighing 22 lb., was presented for

**Model 20335, National Cylinder Gas, Division of Chemetron Corp., Chicago, Ill.

†Varizyme, Lederle Laboratories, Division of American Cyanamid Co., Pearl River, N.Y.

‡Alevaire, Winthrop Laboratories, New York, N.Y.

examination with severe intractable cough, dyspnea, and cyanosis. A diagnosis of congestive heart failure was made. The dog was given digitoxin and chlorothiazide* was placed in the therapy cage, and was given oxygen for 12 hours at a flow rate of 6 l.p.m. After 2 hours, respiration was less labored. After 24 hours, the dog was breathing with enough ease to be removed from the cage.

Another episode of severe dyspnea and cyanosis occurred on the second day of hospitalization and was relieved after 4 hours in the oxygen therapy cage. Digitalization was accomplished on the third day in the hospital. The dog is now being maintained on digitoxin and chlorothiazide at his home and is comfortable despite a marked chronic cardiac insufficiency.

Case 6.—A spayed female Collie, 3 years old, was presented for examination in a state of anxiety and with severe dyspnea 5 hours after she had inhaled smoke from a grass fire. The dog was struggling, coughing and in severe distress, with blood-tinged froth coming from her nostrils. A diagnosis of acute pulmonary edema was made.

The dog was given 100 mg. of aminophylline intravenously and 200 mg. of meperidine intramuscularly. Then, she was placed in the oxygen therapy cage with oxygen flow rate set at 12 l.p.m. The nebulizing attachment was filled with 15 per cent ethyl alcohol to act as an antifoaming aerosol. Four hours later, the dyspnea was partially relieved and the alcohol vapor was discontinued. Flow rate of oxygen was reduced to 6 l.p.m. for the following 10 hours. The dog was given prophylactic antibiotic therapy during her 4-day hospital stay. Her recovery was uncomplicated.

*Diuril, Merck, Sharpe and Dohme, New York, N. Y.

Summary

An oxygen therapy cage, equipped with nebulizer and connected to a piped oxygen system was used in the successful treatment of scores of animals with severe respiratory involvements. The use of oxygen alone and oxygen in combination with various pharmaceutical agents administered by inhalation facilitated treatment and aided comfort of the patient in a variety of conditions which, without use of the piped oxygen system, would have been accompanied by greater distress to both the patient and the veterinarian, and would have required a more guarded prognosis. Use of oxygen in the treatment of selected conditions should find increasingly widespread application in the field of small animal medicine and surgery.

Hydroxytryptamine Increases Oxygen Supply to Heart

In experimental dogs, 5-hydroxytryptamine (serotonin) appeared to act as a powerful coronary vasodilator, increasing the oxygen supply to the myocardium without increasing left ventricular work.

Cardiac output and coronary blood flow in anesthetized dogs were measured before and after mechanical infusion of the drug. Heart rate, pulmonary arterial pressure, and right ventricular work increased. Systemic blood pressure and resistance were reduced. Coronary blood flow and coronary sinus oxygen content were increased, as well as cardiac oxygen consumption and carbon dioxide production. Mechanical efficiency of the left ventricle dropped.—*Am. J. Physiol., 197, (1959): 736.*

Eight Additional Cases of

Pansteatitis ("Yellow Fat") in Cats

Fed Canned Red Tuna

Robert C. GRIFFITHS, D.V.M.
Gus W. THORNTON, D.V.M.
John E. WILLSON, D.V.M.

THE PURPOSE of this article is to report 8 cases of pansteatitis ("yellow fat") in cats seen at the Angell Memorial Hospital since the last report was published in 1958[1] and to call attention to the relative ease with which this entity may be recognized. These additional cases were seen between Nov. 24, 1958, and July 30, 1959.

The earlier report from this hospital included a detailed description of this disease condition as seen in 4 cats, and presented complete postmortem findings on 2 which died. This report also brought out the regular association of this condition with the feeding of commercial canned red tuna cat food.

The 8 cases reported here include cats from different environments and of ages varying from 6 months to 8 years. All were fed canned red tuna almost exclusively for varying periods before the onset of the illness (table 1). One cat (No. 1) had been receiving the red tuna diet for only 4 to 6 weeks prior to showing signs of the disease. Four cats (No. 1, 2, 3, 4) were reported to have been fed canned red tuna with "added vitamin E" for approximately 4 to 6 weeks before developing the disease. The authors have not observed this disease condition in cats other than those which have been fed canned red tuna.

The most common clinical signs observed by the owners were generalized soreness, depression, and anorexia. Signs of pain were very prominent, being most evident when the cat was touched on the back, lateral and ventral abdomen, and base of the tail. Normally docile, tractable cats would vigorously resent being handled by their owners. Fever was a constant sign with body temperatures as high as 105.5 F. being recorded on admission to the hospital. In most cases, the subcutaneous fat felt lumpy and granular, especially in the ventral abdominal area, and there was marked sensitivity to palpation of this fat. White blood cell counts were generally, but not invariably, elevated, with a neutrophilia being common.

Biopsies of the subcutaneous fat were taken in 3 of these cats and all showed inflammatory changes similar to those previously described.[1]

Treatment in all 8 cases consisted of the elimination of red tuna from the diet and the administration of d, *alpha*-tocopheryl acetate,* 18.5 to 55.5 mg./24 hours. In several cases, corticosteroids, antibiotics, and multiple vitamins were used in various combinations with the above treatment (table 1).

Discussion

A major difficulty encountered in the treatment of this condition was inducing the cats to eat other types of food once they had become accustomed to the canned red tuna. Some of the affected cats seemed almost addicted to this food and would change their dietary habits only with great reluctance.

The exact cause of pansteatitis remains obscure. In the 12 cases recently reported in cats from Angell Memorial Hospital, the feeding of canned red tuna has been a constant factor. In a recent article[2] report-

The authors are clinical staff members at the Angell Memorial Animal Hospital, Boston, Mass.

*Tocopherex is produced by E. R. Squibb & Sons, New York, N.Y. Each capsule contains 18.5 mg. d, alpha-tocopheryl acetate, equivalent to 25 international units of vitamin E.

ing on a number of controlled feeding studies with mink cubs, the authors conclude that "the development of 'yellow fat' in mink is primarily due to the contents of marine fat in the feed." They further state, "The most satisfactory method of preventing 'yellow fat' in mink cubs is control of the fat composition in feeds, so

TABLE 1 — Summary of 8 Cases of Pansteatitis ("Yellow Fat") in Cats

Age, sex date of admission	Diet: Canned red tuna	Diet: Canned red tuna with "added vitamin E"	Diet: Other major constituents of diet	Primary signs on admission	Diagnostic procedures and results	Treatment	Outcome
Case 1 3 yr., c.m. 7/25/59	.....	2 cans daily for 4 - 6 weeks.	.....	Depression, anorexia, generalized tenderness esp. dorsal abdomen and thorax. T. 104.2.	Biopsy of sc. fat—steatitis; w.b.c. 25, 200: S 70%, NS 11%, E 2%, L 16%, M 1%.	Diet changed, d,alpha-tocopheryl, multiple vitamins, pen-strep.	Recovered. In hospital 8 days; difficult to make eat other type foods.
Case 2 5 yr., c.m. 7/30/59	Almost complete diet for 1 yr.	Almost complete diet for 4-6 wk. prior to entry.	.....	Depression, anorexia, generalized tenderness, hesitated to move, lumpy sc. fat. T. 103.0.	Biopsy of sc. fat—steatitis; w.b.c. 15, 600: S 68%, NS 5%, E 3%, L 24%.	Diet changed, d,alpha-tocopheryl, cortico-steroid, multiple vitamin.	Recovered. In hospital 7 days; still painful on discharge; difficult to make eat other diet.
Case 3 5 yr., c.m. 7/14/59	2 mo. - part of diet; 5 mo. - complete diet.	Almost complete diet 4-6 wk. prior to entry.	Chicken, halibut, other fish-base canned cat food.	Depression, anorexia, generalized tenderness, constipation,lumpy, sc. fat esp. ventral abdomen. T. 104.6.	Biopsy of sc. fat—steatitis; w.b.c. 10, 700: S 73%, NS 8%, L 19%	Diet changed, d,alpha-tocopheryl, corticosteroid, multiple vitamin, pen-strep.	Ready for discharge in 10 days.
Case 4 8 yr., c.m. 7/23/59	Almost complete diet 7-8 mo.	Almost complete diet 4-6 wk. prior to entry.	Other fish-base canned cat food.	Depression, anorexia, no b.m. since appearance of symptoms, generalized tenderness, lumpy, sc. fat. T. 104.0.	w.b.c. 16, 300: S 88%; NS 6%, E 1%, L 5%.	Diet changed, d,alpha-tocopheryl, corticosteroid, oxytetracycline, mineral oil for 2 days.	Recovered. In hospital 6 days.
Case 5 8 mo., s.f. 12/12/58	Almost complete diet since weaning.	.....	.....	Anorexia, extreme tenderness when touched. Thickened, lumpy sc. fat, esp. over back and ventral abdomen. T. 104.0.	Intractable animal.	Diet changed, d,alpha-tocopheryl, multiple vitamin.	Recovered. Home in 2 days due to intractable nature; very slow recovery over several weeks. Difficult to force other food.
Case 6 5 yr., c.m. 11/24/58	Part of diet for 3 mo.	.....	Pork kidney, canned white tuna.	Extreme tenderness when touched. Thickened lumpy, sc. fat, esp. ventral abdomen and tailhead. T. 102.8.	w.b.c. 29, 550: S 71%, NS 18%, L. 11%, n.r.c. 1/ 100 w.b.c.	Diet changed, d,alpha-tocopheryl, multiple vitamin.	Recovered. In hospital 4 days. Took 6 wk. for symptoms to completely regress. Ate other type food well.
Case 7 8 mo., s.f. 1/22/59	Partial diet all of life.	.....	Cooked liver and kidney, canned white tuna.	Anorexia, depression, generalized tenderness, arched back, cautious "slinky" gait. No b.m. since onset of symptoms. T. 105.5	w.b.c. 24, 600: S 74%, NS 4%, E 4%, L 16%, M 2%.	Diet changed, d,alpha-tocopheryl, corticosteroid, multiple vitamin, pen-strep. daily.	Recovered. In hospital 7 days; ate another type of diet well.
Case 8 6 mo., m. 2/20/59	Almost entire diet since weaning.	.....	.....	Anorexia, listless, sc. fat in groin lumpy. T. 104.0.	w.b.c. 30, 300: S 10%, NS 80%, E 2%, L 8%, n.r.c. 2/ 100 w.b.c.	Diet changed, d,alpha-tocopheryl, oral B-complex vitamins, pen-strep (last 4 days).	Recovered. In hospital 8 days; ate another type diet well.

Key to Abbreviations: w.b.c.—white blood cell count, S—segmented neutrophils, NS—nonsegmented neutrophils, L—lymphocytes, M—monocytes, E—eosinophils, n.r.c.—nucleated red blood cells, T—temperature (rectal), b.m.—bowel movement, m—male, c.m.—castrated male, s.f.—spayed female, sc.—subcutaneous, pen-strep.—penicillin-streptomycin.

that the contents of marine fat does not exceed 3 to 4 per cent."

A limited number of cats being fed canned red tuna and showing signs of pansteatitis have been examined and treated as out-patients during the period covered by this report. These cats were not hospitalized and so are not included in this report.

Summary

Eight cases of pansteatitis in cats are reported. Constant findings were generalized soreness, fever, anorexia, and a history of being fed canned red tuna. Elevated white blood cell counts and a lumpiness or granular feeling of the subcutaneous fat were common. Red tuna is well-liked by most cats and it is often difficult to institute a dietary change.

References

[1]Munson, T. O., Holzworth, J., Small, E., Witzell, S., Jones, T. C., and Luginbuhl, H.: Steatitis ("Yellow Fat") in Cats Fed Canned Red Tuna, J.A.V.M.A., 133, (Dec. 1, 1958): 563-568.

[2]Dalgaard-Mikkelson, Sv., Momberg-Jorgensen, H. C., and Petersen , F. Haagen: Forebyggelse af »gult fed« hos mink, 308, beretning fra forsogslaboratoriet trykt i Frederiksberg Bogtrykkeri. Vesterbrogade 60, Kobenhavn V, 1958.

Progesterone Present in Mare's Blood During Early Gestation Only

Studies show that progesterone is readily detectable in the blood of both pregnant and nonpregnant mares, provided there is a fully developed corpus luteum present. During the latter half of gestation, at which time the ovaries have become fibrotic, progesterone is not detectable in peripheral blood, despite the fact that it is present in high concentrations in the umbilical cord blood.

It appears that in the latter half of gestation, placental progesterone probably exerts a local action on the uterus and does not even enter the maternal circulation. This purely local action is possible because of the diffuse epithelio-chorial nature of the mare's placenta.—*J. Endocrinol., 19, (1959): 207.*

Hemoglobinuria and Anemia Associated with Aphosphorosis

Postparturient hemoglobinuria (PPH) and anemia were diagnosed in dairy cows in Australia where severe aphosphorosis occurred. It may be that both syndromes are manifestations of aphosphorosis.

The clinical signs were retention of winter coat, allotriophagia, lameness, decreased production, lordosis, and emaciation despite adequate feed. Postmortem findings were: enlarged and flabby heart with petechiation of the ventricles, icterus in some cases, and fragile bones.

Sodium acid phosphate and bone meal were used in treatment. No cases of anemia or PPH occurred after adequate bone meal supplements were given.—*Austral. Vet. J., 35, (1959): 140; abstr. 3913 in Vet. Bull., 29, 1959.*

An Evaluation of an

Outdoor Kennel for Dogs

A. C. ANDERSEN, V.M.D., PH.D.
M. GOLDMAN, PH.D.

MOST KENNEL designs are concerned primarily with the housing of dogs at low cost; little emphasis is placed on the dog's general well-being. This report describes an economical and practical kennel oriented toward the well-being of the dog.

For the past 8 years, the School of Veterinary Medicine at the University of California has been concerned with the maintenance of dogs throughout their life. Environmental factors are of importance since the life-span of any animal is directly related to both its genetic composition and its environment; the latter is concerned with the spread of disease, protection from the weather, prevention of accidents, and contentment of the animals. The kennel design described herein minimizes many of the more common faults of most kennels: pen pacing, fence jumping, fighting, digging, and other consequences of improper facilities and management. This report does not present a panacea for all kennel problems, but the design described satisfies the basic requirements of dogs kept continuously within a given confine.

Materials and Methods

Two kennels at different sites but with a similar basic design are compared. The first kennel has maintained 400 to 500 purebred Beagles since 1952.[1] The second kennel, completed in 1957, retained the basic design of the first, but included certain improvements observed to be beneficial to the dogs.

Purebred Beagles were selected as the experimental animal because of their medium size, moderate coat length, even disposition, adaptability to packs, and because cosmetic surgery is not required. Their undesirable characteristics—a wandering tendency and penetrating bark—can be controlled. Ventriculocordectomy can permanently reduce the volume and frequency of the bark.[2] The wandering

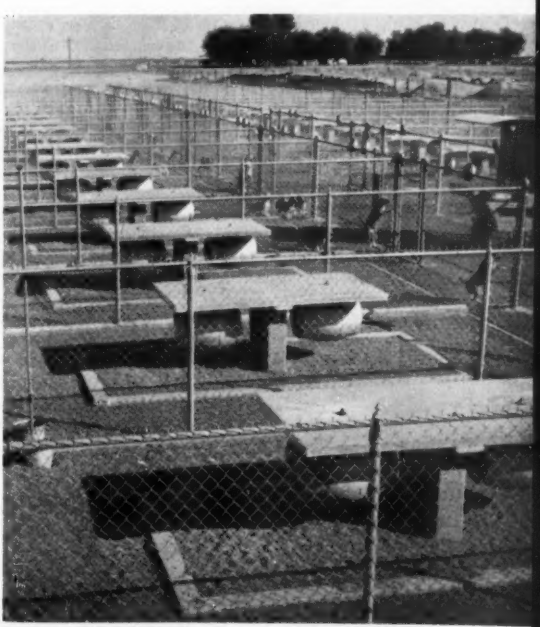

Fig. 1—View of outdoor pens showing doghouses made of barrels suspended from a platform. A center pier elevates the barrels from the surface of the pen, providing free movement of air. Examination table appears in upper right; feed pans are on fence.

From the School of Veterinary Medicine, University of California, Davis; Dr. Andersen is associate research radiopathologist, AEC Projects 4 and 6, and Dr. Goldman is associate research radiobiologist, AEC Project 6.

This work was performed under Contract AT(11-1) GEN 10, between the University of California School of Veterinary Medicine and the U.S. Atomic Energy Commission.

The authors thank Mr. William Gee for collecting and preparing the parasite data, Dr. H. B. Shultz for assisting in analysis of the temperature data, Mrs. V. Gibson for assistance with the field study data, and Mr. C. Hardesty and the animal caretakers assigned to these projects for their careful observations of the dogs.

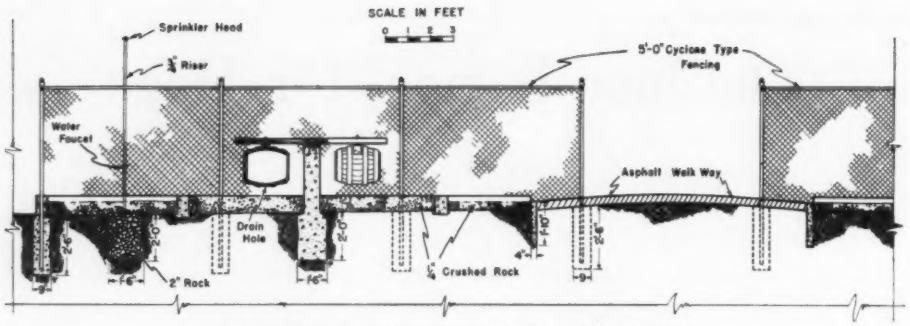

Fig. 2—Diagrammatic cross-section of outdoor kennels.

tendency can be minimized with pens of adequate size arranged for companionship and social activity. Previous studies[1] gave evidence that rectangular pens (1 pen: 2 dogs) providing at least 10 sq. ft. per inch of body height are satisfactory when dogs are kept in pairs. Pens of other shapes and sizes resulted in uneven surface coverage by the dogs and encouraged digging or fence jumping. Though the tests have been primarily with Beagles, limited observations indicate that the same criteria apply to such divergent breeds as the Dachshund and German Shepherd Dog.

Both kennel sites are located on adobe or fine loam soil on this campus. Annual temperature extremes in this region are 18 and 120 F., with relatively high humidity in winter and low humidity in summer.

The Beagles used were whelped and raised in a breeding colony established in 1951.[2] A nucleus of 80 female and 7 male purebred Beagles was periodically replaced to ensure heterogeneity.

Dams and their progeny to 6 months of age were fed a compounded ration in the morning and ground beef (1/4-1/3 lb.) in the evening. Dogs over 6 months old were given an ample quantity of ration each morning. The compounded ration consisted of 60 per cent commercial dry dog foods supplemented with vitamins,* 20 per cent ground beef, and 20 per cent warm water. The ration was prepared by partially cooking the meat with a steam jet and adding dry dog food until the desired consistency was reached. This mixed ration was then distributed to the pens by wheelbarrow. Since the dogs, partially or completely, refuse a feeding every sixth to eighth day, a procedure was established to substitute the compounded ration with oxtail weekly. The chewing of oxtails tends to maintain gums and teeth in a healthy condition. Antibiotics and other medicated ration supplements were avoided.

The daily program of the kennel includes the caretakers entering each pen to observe the dogs and to remove fecal material. The time involved is only about 2 minutes per pen, but a close animal-to-man relationship is established, greatly facilitating conditioning and handling of dogs for experimental procedures. Observations by the caretakers are reported to the foreman, who is responsible for a daily log of kennel activities.

On a 7-day work schedule, 1 animal caretaker, counting the kennel foreman, is required for every 72 dogs. The caretaker's work schedule consists of 3 full days plus 3 half days, followed by 2 days off. Kennel chores account for about half of the work schedule, which permits ample time for experimental procedures and kennel hygiene.

Each dog is given a semimonthly physical examination including observations of: (1) general appearance, (2) body weight, (3) stage of estrus, and (4) pathologic syndromes. All observations are recorded on IBM cards. Annually, each dog is given a more comprehensive physical examination, including: photograph, weight, conformation measurements, and auscultation and palpation of internal organs. Throughout the studies, therapeutic measures were kept minimal and, with few exceptions, individual treatment was avoided. Each dog was vaccinated against distemper and canine infectious hepatitis at weaning (36 days old). Vaccination was repeated when the dogs approached puberty (8 months old).

Outdoor Pen Design and Construction

The pen design (fig. 1) provides adequate space for exercise, companionship, and a social relationship—factors that determine the facilities needed for restraining the dogs. Under these conditions, dogs definitely prefer to remain in their pens, as has been repeatedly demonstrated by opening a pen gate and allowing the dogs access to the center pathway. One or both dogs run up and down for only a few minutes and then return to their own pen. Such an episode arouses an instantaneous outburst from the entire kennel, that is highly effective in keeping the dogs alert and active.

*Nopco special vitamin formula, Nopco Chemical Co., 1141 S. 14th St., Richmond, Calif.

Satisfying the dogs' social needs makes a 5-ft. fence without barbed wire adequate for restraint. In the past 8 years, 454 Beagles have been successfully restrained without a single incident of fence jumping.

Pen surface, water supply, and the doghouse are important features in kennel design. Hard surfaces (concrete, asphalt) absorb heat in the summer and require an elaborate drainage system. Crushed rock, ½ inch, has been found superior to other materials (pea gravel, sand, and creek-run gravel) because of decreased displacement within the pen and less ingestion by the dogs. The rough edges of crushed rock apparently decrease its movement in the pen, thereby reducing the work necessary to keep the pens tidy. A center curbing of concrete further reduces displacement of the pen surface (fig. 1, 2). Ingestion of sand or gravel by the dogs can be a problem, sometimes causing obstipation and even an occasional death. The ingestion of crushed rock, however, is avoided by dogs, as evidenced by abdominal roentgenograms. Dogs on crushed rock rarely have it in the digestive tract, whereas dogs on gravel surfaces usually have varying amounts of gravel in the large colon. The central asphalt which extends 2 ft. into each pen (fig. 2, 3) provides a gravel-free area on which the dogs can be fed.

A wooden-barrel doghouse[5] has been modified to protect the dogs against climatic variables. The first design,[1] barrels on a wooden base with a platform overhead, provided 3 essential areas: a space under the barrels for summer use, the barrels themselves for winter use, and a wooden cover protecting the barrel entrance and serving as an observation point for the dogs.

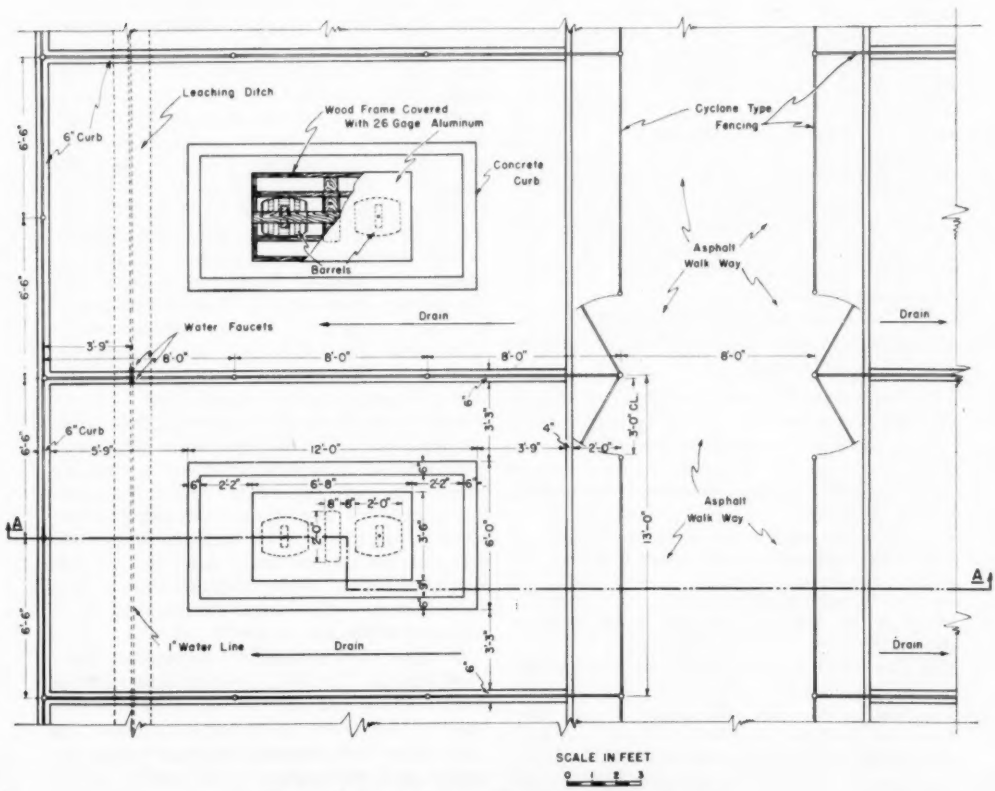

Fig. 3—Diagram of general layout of outdoor kennels.

Bedsores have not been observed in this kennel, though no bedding is used; the dogs quickly removed any rags, sawdust, or paper placed in the barrels. Positioning the fill hole of the barrel on the bottom keeps debris from accumulating. The major deficiencies in this design were the use of wooden covers on which the dogs chewed, and the heavy understructure which prevented free air movement during hot weather. For example, in a 7-year period, annual mortality from heatstroke was 0.2 per cent. The objections to the original design have been largely corrected: a concrete pier, replacing the wooden base, supports the platform from which the barrels are suspended. The design allows free movement of air under the barrels, provides a more hygenic structure, and eliminates the possibility of ingestion of wood. The pier protects the entrance to each barrel.

Fresh water is available to each pen from a 1-inch main placed parallel to the leaching line (fig. 3). Cut-off and drainage valves are placed at both ends of this line, which feeds from a 2-inch water main. In alternate pens, a ¾-inch riser extends 16 inches above the pen surface with faucets entering each pen. Faucets can be placed under the barrel platform for weather protection. Likewise, alternate pens can be supplied with an overhead sprinkler to supply moisture as desired. Water buckets or automatic watering devices are attached to the faucet in each pen.

The essential sequence necessary to construct this design, as illustrated in figures 2 and 3, is as follows:

1) The kennel site was graded to establish a drainage slope.

2) A leaching line was filled with 2 inches of rock.

3) The center asphalt pavement and the concrete curbing were poured.

4) Plumbing was installed before the galvanized fence posts and fencing were erected. A top rail supports the fencing above, but a high-tension type wire is required only on the lower surface, since the bottom of the fence is embedded in the concrete curbing about 1½ to 2 inches deep.

5) The concrete curbing within the pens and the pier for the doghouse were poured while the platform and barrels were being fitted. An iron shoe placed on the barrel with a welded bolt was used to fasten the barrels to the platform above.

6) Between 8 and 10 inches of ½-inch crushed rock was used to surface the pens.

Discussion—Evaluation of Kennel Design

In general, our primary objective was to establish an ecologic balance or utopic environment that would minimize the over-all effects of stresses and stressors. Since the experimental design includes life-span evaluations, the assessment of kennel factors was not complicated by the traffic and variables common to most other types of kennels.

A population of dogs should not be maintained under controlled conditions without consideration of their gregarious habits and harem instincts. Yet, these very factors favor the spread of infectious diseases. One of the most gratifying results of this kennel design has been the reconciliation of these opposing objectives. Colds and other nonfatal infectious diseases have been observed, but a more valid assessment of kennel epidemiology is the incidence of fatal diseases. On several occasions over a 5-year period, the dogs in the kennel have been challenged by such diseases as the distemper complex, infectious canine hepatitis, and bronchitis (kennel cough). Challenge was accomplished by exposing a given group of kennel dogs to 1 or more dogs showing various stages of the disease syndrome. For example, 1 dog in the early stages of distemper and another dog exhibiting clinical signs of hard pad disease were placed each in a pen occupied by paired Beagles. After 3 weeks, 1 of the exposed dogs died of hard pad disease, and the disease then spread through the kennel in a pattern (fig. 4). In this instance, about 4 months elapsed before the disease returned to the original site of exposure. Mortality was 2.4 per cent. Less virulent diseases tested merely demonstrated a clinical syndrome. The epidemiologic pattern of development, however, followed a circular course through the kennel which required 2 to 4 months to complete. Therapeutic attempts failed to alter the pattern of spread; only the severity of the disease was altered. We have rarely observed more than 1 of a social group of 8 dogs succumbing to a disease during any epizootic.

Results with subclinical syndromes have been similar. In 1954, several rats invaded the breeding and pup colony. In the following weeks, several pups succumbed to *Leptospira icterohaemorrhagiae* infection. After that, the serum of the entire colony was titered at 4-month intervals over a

period of 8 months. There were positive titers at the first examination, and none thereafter.

We have controlled diseases as well with prophylactic measures as with therapeutic measures. Such preventive measures as vaccination, limiting movement of dogs within the kennel, and proper nutrition have proved satisfactory in disease control.

Internal and external parasites can be controlled. Degree of control appears related to exposing the pen surface to weather and removing excreta and debris. Since no bedding is required, fleas are easily controlled by periodically dipping the dogs in chlordane (1%). Flea control seems to explain the near absence of the common tapeworm, *Dipylidium caninum.*

The kennel site was seeded with parasites by introduction of the original Beagles and subsequent additions of new stock. Since 1952, monthly fecal flotation tests (sugar method)[4] have been conducted; 76 per cent of the stools examined in 1952 were positive for various species of internal parasites. Thereafter, the incidence decreased and became remarkably stable, with a bimodal increase in spring and again in early winter. In 7 years, 9,423 fecal examinations revealed the following incidence of internal parasites:

Toxacara canis	1.4 per cent
Toxascaris leonina	0.3 per cent
Trichuris vulpis	1.0 per cent
Ancylostoma caninum	0.1 per cent
Strongyloides sp.	0.1 per cent
Isopora sp.	0.3 per cent
Others	0.1 per cent
Total	3.3 per cent

Spread of parasites between pens was not evident, though individual pens have been positive. Clinical evidence of parasitism has not been observed in either kennel.

Heartworm (*Dirofilaria immitis*) was identified in 18 of the original dogs and in 3 of their progeny raised in the kennel. Annual serum examinations for heartworm have been negative for the last 5 years.

Flying insects (flies, mosquitoes, and gnats), though found around the kennel buildings, are rarely seen in the pens.

Climatic protection is important during both winter and summer. The winters are not severe in this area, but the summer heat can cause heatstroke. Five such fatalities in the last 8 years occurred in obese dogs. During the winter, the dogs occupy

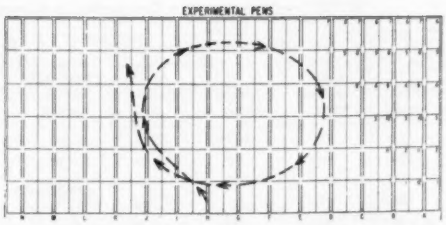

Fig. 4—Arrows show course of spread of hard pad disease that occurred in outdoor kennels.

the inside of the barrels, and in the summer the space below the barrels is used for protection. Winter fog and rain, with temperatures of 20 to 40 F., would be expected to favor respiratory diseases. Nevertheless, bronchitis and pneumonia have been extremely uncommon although some dogs might simultaneously be enduring the added stress of an experimental procedure.

Protection from the extremes of summer heat has been of primary concern since diurnal summer temperatures range from 60 to 120 F. The summer climate in this area is variable. On most days, there is a southwesterly (distant) sea breeze that holds temperature peaks to the 90's and increases relative humidity to 30 to 40 per cent. Hotter spells are usually associated with a dry north or northeasterly wind that lowers relative humidity below 20 per cent and raises the temperature to over 100 F. The wind direction and velocity causes an inverse relationship between temperature and humidity. Official black-globe temperatures are 15 to 20 F. higher at ground level than at a 5-ft. elevation.

At each kennel site, thermocouples connected to continuous recording charts provided a simultaneous record of temperatures at 3 locations in the pen: the ground itself (4 inches deep in the shade of the doghouse), the air beneath the shelter, and the air within the barrel. The data were compared with official values on temperatures, humidity, and wind during the same periods.

The data (table 1) suggest that the 2 kennel designs offer adequate protection from the heat, based upon values taken from the ground and within the barrel. However the suspended barrel-concrete pier design provided about a 5 degree cooler shaded area beneath it than the older design. During the peak of the afternoon heat, the dogs burrow down about 4 inches in

TABLE 1—Temperature Comparisons Between Doghouses and Official Campus Recording

Date (Aug.)	Doghouse No. 1			Doghouse No. 2			Official campus values		
	Ground* below barrel	Inside barrel	Shaded area	Ground* below barrel	Inside barrel	Shaded area	Black globe peak	5-ft. elevation	Relative humidity (%)
12	93	103	104	90	102	104	126	101	19
14	90	98	98	92	95	96	97	91	30
16	88	95	98	89	95	94	105	90	33
18	79	84	84	78	80	80	92	77	43
28	84	94	99	87	92	92	110	88	25
30	88	100	110	90	103	100	120	96	25
Average	87.0	95.7	98.8	87.7	94.5	94.3	108.3	90.5	29.2

All data represent afternoon peak values at approximately 4:00 p.m. *Thermocouple inserted 4 inches below the pen surface.

the shade of the doghouse. The animal loses heat not only by direct radiation to the air, but also by conduction to the ground and by evaporation, since the ground is always 10 degrees cooler than the dog. The open design of the newer kennel, by allowing better air exchange, promotes more efficient cooling. These factors appear related to the absence of heatstroke in occupants of these pens.

Maintaining a colony of this size for several years has provided an opportunity to observe some facets of canine nutrition that otherwise might have been overlooked. Mass feeding hundreds of dogs of different ages indicates that the average adequate diet promotes obesity in the adult dog. With advancing age, the average-sized Beagle (20 to 30 lb.) adds adiposity at the rate of 6.6 oz. per 100-day period. Seasonal fluctuations account for an increase in weight during late fall and winter, followed by a decrease during the summer. These values apply both to the 10 per cent of the colony that has remained consistently obese and an equal proportion classified as thin.

The most effective control of obesity is to limit caloric intake during the summer. The amount of food given was gradually decreased as determined by the amount not consumed. The amount finally established as necessary was fed for 2 weeks and increased 10 per cent in the third week. This procedure of alternately limiting the food does not stress the thin dog but successfully controls obesity.

As mentioned, social activities should be taken into consideration in kennel design. Social needs can be satisfied by adequate space for exercise, companionship, and allowing a group relationship. Frequent, and often serious, quarrels develop if more than 2 dogs are kept together. A single dog within a large pen either becomes lethargic or develops some undesirable trait such as pacing, digging, or jumping. When 1 of a pair dies, the survivor becomes listless and apathetic. Thus, pairs are the optimum number if the sexes are segregated. Pen pairs of 316 female dogs have had minor altercations and occasional riding of mates, but there have been no serious drawbacks. Stud dogs are kept isolated, but dogs not used for stud have been paired successfully in pens.

A social relationship between paired dogs adds to their contentment. Four adjacent pens separated by fencing permits muzzle contact between 8 dogs (fig. 1). We have confirmed that a social relationship does exist within a given group, with introverts and extroverts exhibiting characteristic moods. For example, females in estrus commonly prefer isolation to a group meeting at the corner of their pens. Thus the adjacent arrangement of pens favors a voluntary social relationship without jeopardizing the dogs' well being from a pathologic or psychologic aspect.

The final evaluation of a kennel design depends on the sum of deleterious factors. Of 336 female dogs maintained for lifespan studies in this kennel, 303 (89.4%) survived the mean age of 5.8 years. Annual kennel mortality has been 1.9 per cent. Statistics are not available from other kennels, but a comparison with Beagles released to private owners from our breeding colony might be of value. This study was made possible by releasing 220 dogs to private owners throughout California. By October, 1956, these dogs were distributed as follows: 36 per cent in cities over 100,000 in population, 40 per cent in cities below 100,000, 21 per cent in rural areas, and 3 per cent in mountainous areas. These dogs

were released 1 month after weaning. One year later, only about half (50.2%) the dogs were known to be alive; 28.5 per cent had been reported dead and the rest were lost or stolen. By December, 1958, 41.4 per cent of the 220 dogs were known to be alive (average age 3.8 yr.). In contrast to the 1.9 per cent mortality in the kennel, dogs kept by private owners had a 10.3 per cent mortality. Although automobiles caused over half of the deaths reported for dogs under natural or field conditions, the remaining causes of death exceeded those under kennel conditions by a factor of 3.

Summary

A kennel design for maintaining large numbers of dogs in outdoor pens has been discussed from the standpoint of the dog's general well being. Providing the dogs with adequate prophylaxis, space for exercise, proper nutrition, companionship, and protection from the weather minimizes many of the problems commonly observed in kennels. Cost of construction (about $250 per pen) and cost of operation and maintenance (about $10 per pair of dogs per month) are within practical limits.

References

[1]Andersen, A. C., and Hart, G. H.: Kennel Construction and Management in Relation to Longevity Studies in the Dog. J.A.V.M.A., 126, (May, 1955): 366-373.

[2]Andersen, A. C.: Ventriculocordectomy (Debarking), the Larynx and Trachea in "Canine Surgery," edited by Karl Mayer, J. V. LaCroix, and H. Preston Hoskins. 4th ed. American Veterinary Publications, Inc., Evanston, Ill., (1957): 280-282.

[3]Andersen, A. C.: Puppy Production to the Weaning Age. J.A.V.M.A., 130, (Feb. 15, 1957): 151-158.

[4]Coffin, David L.: Manual of Veterinary Clinical Pathology. 3rd ed., Comstock Publishing Associates, Ithaca, N. Y., 1953.

[5]Davies, Henry P.: Modern Dog Encyclopedia. 2nd ed., Stackpole Co., Harrisburg, Pa., 1956.

Effect of Dietary Fat and Cholesterol on Swine

A greater degree of typical atheromatosis and higher tissue cholesterol values were found in swine after they had eaten rations with added cholesterol and unsaturated fats. Atheromatous lesions in animals ingesting saturated fat with cholesterol are diffuse and atypical. Liver and coronary cholesterol, but not plasma, values were greatly increased in swine ingesting cholesterol and unsaturated fat, suggesting that total cholesterol value is not a criterion of the effects of diet on coronary cholesterol deposition.—*Mod. Med., 28, (1960): 311.*

Anaplasmosis Anemia in the Calf

Effect of anaplasmosis on the blood of 33 calves 1 to 5 months old was studied with the aid of radio-iron, radio-chromium, and standard hematologic methods. The anemia was caused by depression of blood formation and decreased utilization of iron rather than increased destruction of erythrocytes. Life span of erythrocytes decreased from an average of 47 days before infection to 15 when the greatest proportion of erythrocytes contained anaplasma organisms and to 6 days after a further 10 days.—*Am. J. Physiol., 197, (1959): 711-716; abstr. 672 in Vet. Bull., 1960.*

Clinical Evaluation of 9-Fluoroprednisolone Acetate in

Race Horse Practice

James L. TEMPLE, D.V.M.

THIS REPORT is based on clinical use of 9-fluoroprednisolone acetate (fluoroprednisolone*) in race horse practice. This product is a corticosteroid having greater anti-inflammatory activity than equal quantities of cortisone, hydrocortisone, prednisone, prednisolone, or methylprednisolone.[1] Local injection of fluoroprednisolone is indicated in treatment of arthritis, tendinitis, and bursitis, in doses of 4 to 10 mg. (4 to 10 cc.), depending on the size of the cavity or area in which the drug is to be injected. For systemic effect, intramuscular injections in doses of 10 mg. (10 cc.), may be used.

Types of Injuries Treated

Of approximately 200 horses given injections of fluoroprednisolone, nearly all had sustained injuries during training or racing. For purposes of discussion, these conditions may be divided into five categories:

1) Carpal and fetlock lamenesses were by far the most frequent. In simple bursitis and chronic osteoarthritis, excess synovia was withdrawn, and 7 mg. (7 cc.) of fluoroprednisolone, divided between two sites, was injected into the carpus, and 4 mg. (4 cc.) was injected into a single site in the fetlock.

Excellent, although temporary (1 to 3 weeks in duration), results were obtained in simple bursitis after 1 to 3 injections. Benefits of shorter duration were obtained in chronic osteoarthritis; however, subsequent treatment proved of decreasing value.

2) In tenosynovitis (bowed tendon), excess synovia was withdrawn, and 4 to 6 mg. (4 to 6 cc.) of fluoroprednisolone was injected, divided between the medial and lateral sides of the tendon. Response was generally fair. Best results were obtained when the injury was recent and when the horse was taken out of training following treatment. Least satisfactory response was obtained when a chronic condition, due to an old injury, had become acute as a result of re-injury. While some horses remained sound for a few races, the duration of soundness was generally limited to the period of rest or light training.

3) In hock injuries, such as thoroughpins, bog spavins, and ligament injuries, excess synovia was withdrawn and 5 to 7 mg. (5 to 7 cc.) of the drug was injected intrabursally. Response was generally fair. Poor results were obtained when the horses were immediately returned to heavy training.

4) In metacarpal periostitis (bucked shins), 10 mg. (10 cc.) of fluoroprednisolone was injected subcutaneously over the affected area. Response was good or excellent when horses were subsequently taken out of training for 2 weeks; however, many trainers raced treated animals after a few days, and benefit from treatment was generally terminated at that time.

5) In localized myositis, 10 mg. (10 cc.) of the drug was injected throughout the affected area. There was good response.

6) In vague lamenesses of undetermined origin, 10 mg. of fluoroprednisolone injected intramuscularly yielded excellent results where the lameness was mild. In more seriously involved cases, results were difficult to evaluate.

Dr. Temple is engaged in equine practice in Arcadia, Calif.

*The fluoroprednisolone used in this study was 9-fluoroprednisolone acetate, which is marketed as Predef by the Upjohn Co., Kalamazoo, Mich., and which contains per cubic centemeter 1.0 mg. of 9-fluoroprednisolone acetate preserved with 0.2 mg. myristyl-gamma-picolinium chloride, and 5.0 mg. of neomycin sulfate.

Discussion and Summary

Nearly all of the approximately 200 horses given injections of fluoroprednisolone were returned to training with the hope that they could be raced again. Under these highly adverse conditions, the degree of success in fulfilling this hope varied from complete recovery (with no further treatment necessary) to no noticeable improvement. The median fell in the "good response" or "excellent response" categories.

No horse became worse as the result of treatment. None of them became hypersensensitive when treatment was repeated. No adverse side effects were observed following intrasynovial or intramuscular injection. No postinjection infection was encountered after intrasynovial injection, probably because of the incorporation of neomycin in the preparation. One previously infected fetlock responded favorably after one injection of fluoroprednisolone. After subcutaneous and intramuscular injection, an apparent feeling of well-being was observed in some horses.

With the economic pressures of maintaining a modern racing stable ever-present in the minds of owners and trainers, every effort is made to keep the horses in racing condition. "Lay-ups" are expensive, because they involve months of care and rest and additional months of retraining must elapse before the horses can race again—if, indeed, they ever can. Therefore, it is most gratifying to find in fluoroprednisolone a means of prolonging the useful careers of the lameness-prone Thoroughbreds.

[1]Dulin, William E., Barnes, Lester E., Glenn, E. Myles, Lyster, Stanley, C., and Collins, Elliott J.: Symposium: Newer Hydrocortisone Analogs. Biologic Activities of Some C_{21} Steroids and Some 6_α-Methyl C_{21} Steroids. Upjohn Co., (1959): 398-404.

Fistula of the Withers

Fistulous withers in 3 Shetland ponies was associated with *Brucella abortus* infection. The organism was isolated in pure culture from a lesion in 1 of the horses and all had positive agglutinin titers. Three cattle on the same farm as the horses also reacted to the agglutination test.—*Ill. Vet., 2, (1959): 15.*

Signs of Foaling

Noticeable mammary gland enlargement usually begins several weeks before foaling. As parturition approaches, the mammary glands become more swollen until sometimes the swelling extends forward along the abdomen and back up between the thighs toward the external genital organs.

Generally, within 48 hours of foaling, the well-known wax appears on the ends of the teats. This is really a dried, serous secretion from the udder. It is an important sign, but quite a number of mares fail to show it. A mare may "wax up" in 2 or 3 hours and foal very quickly. Some mares may delay foaling for 2 or 3 days after its appearance.—*J. Roy. Army Vet. Corps, 30, (1959): 139.*

Editorial

Veterinaries or Veterinarians?

A nationally-prominent veterinarian, speaking at a luncheon meeting of his service club, good naturedly berated the editor of the local newspaper for having referred to veterinarians as "verterinaries." The editor, equal to the challenge, appeared at the text meeting fortified with a dictionary and a written statement from a librarian, and publicly declared that "veterinary" is quite acceptable when used as a noun.

Situations like this result in requests to AVMA headquarters for assistance. Some communications, on arrival, still emanate the righteous indignation of the injured party. Those who are inclined to insist that we have the dictionaries amended can be assured that we are only in a position to suggest such a remedy; we cannot enforce it.

For example, in April, 1960, AVMA editors suggested to the publishers of "Webster's New International Dictionary" that *veterinary*, used as a noun, should be either deleted or else designated obsolete. In reply, the publishers asserted that their position regarding this word has not changed during the 11 years since they notified the AVMA that ". . . no dictionary successfully creates language. We conceive it our function to appraise and report language as it is actually used both by relevant professional groups and by the general public. Our selection of entries and our definitions of the terms selected are in all cases based on cross-sections of actual usage in pertinent writings. Consequently, we are satisfied that it is use by public and press that has put *veterinary* in the dictionary as a noun rather than that its presence in the dictionary has induced its use."

Anyone can verify that cross-sections of contemporary writings rarely contain veterinary as a noun. However, our readers who have held the life-long belief that Webster's is *the* authority on proper word usage may be disappointed to learn that this extremely limited use by public and press may preserve dictionary entries and definitions forever.

What can you do about it? *Don't* wage a letter-writing campaign to dictionary publishers—they're interested in public and press usage, not the opinion of specialty groups. Don't complain to the AVMA—unless you feel that the reply to your letter justifiably subtracts staff time from problems more important to you. *Do* express your concern to the occasional speaker or writer who uses *veterinary* as a noun. Do it tactfully, pointing out that the term persists from horse-and-buggy days; that it now connotes to many the vanishing, crude, unskilled, and uneducated quack; that nothing brands the user more quickly as one totally unfamiliar with modern veterinary medicine. Probably you'll have made a convert.

Or perhaps you'd prefer to direct your time and energy toward more rewarding activity. After all, what's in a name? If the layman, upon hearing someone called a "veterinary," forms the mental image of a professional man, a member of health teams, a college professor, a protector of the nation's food supply, the operator of a modern veterinary hospital, or a biological scientist, should we worry about the name?

—D.A.P.

Bephenium Embonate for Nematodes in Cattle

On the basis of pretreatment and post-treatment fecal egg counts, bephenium embonate given orally at the rate of 250 mg. per kilogram of body weight reduced the Nematodirus eggs per gram (e.p.g.) of feces from a range of 2 to 251 on the day of treatment to zero in 11 of 12 infected Hereford calves. The Nematodirus egg count in the twelfth calf was reduced from 28 on the day of treatment to 2 e.p.g. on post-treatment day 22. The number of trichostrongylid e.p.g. was reduced from a range of 1 to 25 on the day of treatment to zero in 9 of the 12 calves. Of the remaining 3 calves, the most trichostrongylid eggs recovered during the post-treatment examinations was 2 e.p.g.

Based on necropsy findings from 2 of the 4 untreated control calves, the 16 calves were initially infected with *Nematodirus helvetianus, Ostertagia orloffi, Cooperia onchophora,* and Trichostrongylus sp.—[*R. Rubin: The Effect of Bephenium Embonate on Egg Production in Nematodirus helvetianus and Other Gastrointestinal Nematodes in Cattle. Am. J. Vet. Res., 21, (March, 1960): 178-180.*]

Bovine Cysticercosis

The economic importance and epidemiology of bovine cysticercosis in the southwestern United States are reviewed, and observations on the development of *Cysticercus bovis* following experimental infection of cattle are reported.

Postmortem examinations were made on 36 cattle, 28 of which were exposed experimentally to infection from 1 to 55 weeks previously with single doses of infective eggs of *Taenia saginata.* Larval cestodes were first observed in the musculature about 11 days after infection.

The age of single infections from 2 to 10 weeks old could be correlated with the stage of development of the larvae, but not with the size of the Cysticercus nor the size of the connective tissue cyst containing it. Cysticerci from 10 to 12 weeks old were believed to be the youngest stages that could be considered on morphologic grounds to be capable of infesting the final host. The condemnation of a steer for cysticercosis 55 weeks after infection indicated that it would be economically impractical to keep infected animals long enough to insure the absorption of the cysts and thus to permit the carcass to be passed for human consumption. —[*Allen McIntosh and Donald Miller: Bovine Cysticercosis, with Special Reference to the Early Development Stages of Taenia saginata. Am. J. Vet. Res., 21, (March, 1960): 169-177.*]

Skeletal Lesions in Rats Fed Sweet Pea Seeds

Forty-eight male albino rats of the Holtzmann-Sprague-Dawley strain were fed a diet containing 50 per cent *Lathyrus odoratus* seeds (principals). A histologic and histochemical study of the epiphysial cartilage deformities produced by feeding *L. odoratus* peas is presented. The uniform periodic acid-Schiff reaction was strongly positive in linear areas and streaked throughout the hyaline cartilage matrix. These same septa were negative to metachromatic staining with toluidine blue and

crystal violet. The streaks of cartilage matrix were, however, strongly positive to Masson's trichrome stain, Mallory's phosphotungstic acid-hematoxylin stain, Wilder's reticulin stain, and van Gieson's stain. This was consistent with the deposition of tropocollagen or soluble collagen in the cartilage matrix with a general breakdown of supporting structures. The epiphysial growth cartilage was widened due to proliferation of the layer of chondrocyte growth. The localization of the lesions must be significant, as is the constant development of a strongly positive periodic acid—Schiff matrix showing negative metachromasia with strong reactions for collagen. This combination of site and histochemical staining reactions identifies the material in epiphysial cartilage matrix as tropocollagen or soluble collagen, and it is concluded that there is an important connection between the lathyrus factor and collagen.

This investigation of the alterations during lathyrism indicates that the sweet pea toxin produces a specific change in mesodermal tissue, particularly hyaline growth cartilage. The sweet pea is therefore an acceptable material for use in the investigation of the metabolism of hyaline cartilage. An insight into the diseases influencing the growth of hyaline cartilage presupposes an understanding of the metabolism of all mesodermal tissues. The complex of lathyrism has therefore been shown to produce histochemical changes in the epiphysial plate of tubular bones.—[*A. F. Gardner: Morphologic and Histochemical Studies of Skeletal Lesions in Rats Fed Sweet Pea (Lathyrus odoratus) Seeds. Am. J. Vet. Res., 21, (March, 1960): 298-305.*]

Identification of Strains of Newcastle Disease Virus

Suspensions of chicken embryo brain cells were found to adsorb all the hemagglutinating activity of some strains of Newcastle disease virus and to leave the hemagglutinating activity of other strains unaffected.

The avidity for brain cells of the 12 strains tested can be used to support, in part, the relationship between brain-cell receptors and pathogenicity for chickens. All of the strains of high pathogenicity for chickens (Calif.-RO-1944, Ont.-Cleroux-1946, Italy-Milano-1945, Eng.-Herts-1933, and Texas-GB-1948) were readily adsorbed. Strains of lesser pathogenicity gave more erratic results; NJ-Roakin-1946, NY-Jones-1948, Wis-VLWI-1951, and Mass-MK107-1949, which seldom cause apparent infection in 100-week-old chickens when inoculated intravenously and which normally kill day-old chicks when inoculated intracerebrally, were adsorbed to the extent of 87 per cent, 62 per cent, and 75 per cent, resectively. Two other strains, Eng.-F and B1, produced inapparent infections in 10-week-old chickens by the intravenous route and in day-old chicks by the intracerebral route. However, the Eng.-F was almost completely adsorbed while B1 was only slightly adsorbed.

The procedure described can be used to study the nature of pathogenicity and can also be used as a characteristic in the identification of strains of Newcastle disease virus.—[*F. P. Piraino and R. P. Hanson: An in Vitro Method for the Identification of Strains of Newcastle Disease Virus. Am. J. Vet. Res., 21, (Jan., 1960): 125-127.*]

Newcastle Disease Virus in an Isolated Intestinal Loop

Using the technique of Newman and Taylor, intestinal tracts of 15-week-old susceptible chickens were resected at 2 points near the yolk stalk. The ends of this isolated portion were sutured over nylon cannulas which were passed through each extremity of the abdominal incision. The blood and nerve supply of this intestinal loop remained uninterrupted. The continuity of the main intestine was re-established by anastomosis.

As soon as the surgical wound healed, Newcastle disease virus (NDV) was introduced into the loop. At intervals, the loop was rinsed with sterile tissue culture fluid. The NDV content of the rinsings was titrated in embryonating eggs. At the same intervals, samples of blood and feces of the infected bird were also titrated. There was a local multiplication of NDV in the loop commencing at 20 hours after infection. The virus appeared then in the blood after additional 16 hours. At 3 days after infection, it began to

be excreted in the feces, indicating an infection of the main intestine.

With the appearance of antibodies (on day 6), the virus disappeared from the blood and the intestinal loop, but it was still found in feces for additional 2 days when the experiment was terminated. — [*A. Kohn and P. S. Ebert: Infection of an Isolated Intestinal Loop by Newcastle Disease Virus. Am. J. Vet. Res., 21, (March, 1960): 281-284.*]

New Books

Joint WHO/FAO Expert Committee on Zoonoses

Since the 1951 report made by this committee, research and new developments have demanded a revised definition of "zoonoses": those diseases and infections which are naturally transmitted between vertebrate animals and man. In addition to bringing the report up-to-date with new findings concerning those zoonoses given attention in 1951, salmonellosis and leptospirosis have been added.

Copies may be obtained in the United States from Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y., and in Canada from the Ryerson Press, 299 Queen St. West, Toronto, Ont.—[*Joint WHO/FAO Expert Committee on Zoonoses: Second Report. 84 pages. Published as World Health Organization Technical Report Series No. 169; and as FAO Agricultural Studies, No. 47. World Health Organization, Geneva, Switzerland. 1959. Price $0.60.*]

Advances in Veterinary Science

This is the fifth in a series of multiple-author compilations edited by C. A. Brandley and E. L. Jungherr. The purpose of the series is summarizing and reporting the progress in the more active fields of veterinary medical research. Hence, these volumes follow a definite outline and have certain things in common.

This volume contains seven sections. Space allows for little more than listing of their titles and authors.

1) Examination of the Eye and Eye Operations in Animals — O. Uberreiter, Clinic for Surgery and Ophthalmology, Veterinary College, Vienna, Austria.

2) Q. Fever: A Zoonosis — B. Babudier, Instituto Superiore de Samta, Laboratorio di Microbiologia, Rome, Italy.

3) Rabies — Ernest S. Tierkel, Communicable Disease Center, Public Health Service, U. S. Department of Health, Education and Welfare, Atlanta, Ga.

4) The Eradication of the Tsetse Fly (*Glossina pallidipes*) from Zululand, Union of South Africa — R. M. duToit, Onderstepoort Veterinary Research Laboratories, Pretoria, Transvall, Union of South Africa.

5) Theilerioses — W. O. Neitz, Division of Veterinary Services, Department of Agriculture, Onderstepoort, Union of South Africa.

6) Infectious Bovine Rhinotracheitis — D. G. McKircher, School of Veterinary Medicine, University of California, Davis, Calif.

7) Tissue Culture in Veterinary Medical Research — S. H. Madin, Naval Biological Laboratory, School of Public Health, University of California, Berkeley, Calif.

Each author has worked extensively in the field in which he reports. Each is familiar with the literature in his field and sufficiently grounded to make intelligent use of it. The material in each section is well authenticated. Of the 450 pages in the volume, 75 are bibliography.

The fact that the seven authors represent 4 countries and 3 continents not only lends an international flavor but signifies the global need for veterinary medical research.

Two over-all impressions from a survey of the contents are: (1) the mounting evidence of the interdependence of veterinary medical science and human health, and (2) the history-making shift in the direction of the developmental policies of an area or a

nation because of the scientific solution of some grave veterinary problem.

The volume should appeal to researchers, educators, and regulatory officials. The sections on rabies and ophthalmology can do much for many practitioners. Veterinarians interested in the surgery of the eye and its appendages will find a wealth of usable material in section 1. Dr. Uberreiter is superbly equipped by training and experience to make this contribution. Conservative, mature judgment, a product of extensive experience, is revealed throughout his writings.

The editors are to be congratulated for a job well done. Their choice of contributors was ideal. If there were problems because of the wide geographical distribution of authors, their diversified interests or language handicaps, they are not revealed in the finished product. The publishers deserve praise for good material and workmanship.—[*Advances in Veterinary Science. Edited by C. A. Brandly and E. L. Jungherr. Vol. V. 450 pages; illustrated. Academic Press, Inc., 111 Fifth Ave., New York 3, N. Y. 1959. Price $14.00.*]—C. H. COVAULT.

Radioactive Fallout in Time of Emergency—Effects Upon Agriculture

This report, prepared by a committee appointed by Byron T. Shaw, administrator of the Agriculture Research Service, describes what is known about the effect of fallout on agriculture and means of defense against it.

After a brief explanation of the immediate effects of nuclear fallout, the area affected, radiation, radioactivity, and measurement of radiation, the agricultural aspects of protection against external and internal radiation are described. These include the sheltering and handling of livestock, the protection of feed and water, the contamination of milk and crops, and the use and reclamation of contaminated soil.

Many photographs and drawings are incorporated into the text, as is a glossary of terms.

An appendix, "Shelter Food Supply," tabulates types and amounts of foods to be kept in reserve, and the report is completed with a list of available publications and films relating to this subject.

Single copies of this special report may be obtained from the Information Division, Agricultural Research Service, USDA, Washington 25, D.C.—[*Radioactive Fallout in Time of Emergency—Effects Upon Agriculture. Special Report (ARS 22-55) by Agricultural Research Service, USDA. 44 pages; illustrated. U. S. Government Printing Office, Washington, D.C. April, 1960.*]

Elements of Biophysics

This book is directed to students in any biological science who desire an introduction to biophysics. The author presupposes that the reader has had a background of one year of physics and at least algebra.

The book is well written and should easily be understood by anyone with the proper background. There are chapters on statistics, electricity, acoustics, mechanics, and kinetic molecular theory. There are six chapters on atomic structure, x rays, and nuclear radiation. All of these subjects are covered rather briefly, serving only as a good introduction.

The book should be of considerable value to graduate veterinary students majoring in physiology or radiobiology. The chapters on electricity and electromagnetic energy are of particular value for anyone recording action potentials of the heart, brain, or other organs.

At the end of each chapter, there is a list of selected references for those students preferring to pursue the subject further. —[*Elements of Biophysics. By James E. Randall. 333 pages; illustrated. Year Book Publishers, 200 E. Illinois St., Chicago, Ill. 1959. Price $8.00.*]—CARL H. CLARK.

News

Left to right—Dr. S. F. Scheidy and Mr. Charlie Bell, Jr., AIB.

AVMA Board of Governors Meet in Washington

Left to right—Dr. E. E. Leasure and Dr. Howard W. Johnson, ARS.

Left to right—Drs. R. J. Anderson, ARS; J . M. Hejl, ARS; S. F. Scheidy; L. C. Heemstra, ARS.

Left to right—Drs. S. F. Scheidy; Frank Todd, ARS.

The Board of Governors meeting on May 19-20, 1960, was unusual in that the setting was the Mayflower Hotel in Washington, D.C.

The conference was held at the nations' capital to provide an opportunity for AVMA officials and staff members to meet with some of the key officials in federal agencies.

Communications and relationships between the agencies and the AVMA were strengthened and ways and means of being mutually helpful were explored. Government officials who met with the Board and staff members at various times during the two-day meeting were:

Agency . . .	Represented by . . .
Animal Industry Branch, Federal Extension Service	Mr. Charlie Bell, Jr., chief

Continued on p. 144 . . .

Left to right—Drs. H. E. Kingman, Jr.; C. D. Van Houweling, ARS; L. Meyer Jones; S. F. Scheidy; W. L. Popham, ARS; Brig. Gen. J. A. McCallam; J. R. Hay; M. R. Clarkson, ARS.

Left to right—Drs. D. J. Anderson; E. E. Leasure; L. Meyer Jones; C. H. Thompson, Jr., ARS; Charles G. Grey, ARS.

Left to right—Dr. R. D. Wegner, AMS; Dr. E. E. Leasure; Mr. Herman Miller, AMS; Dr. D. J. Anderson; Mr. O. V. Wells, AMS; Dr. S. F. Scheidy; Mr. Roy W. Lennartson.

Left to right—Drs. S. F. Scheidy; D. J. Anderson; J. R. Hay; E. E. Leasure; L. Meyer Jones; Raymond J. Helvig, NIH; Joe W. Atkinson, NIH; Preston Holden, NIH.

Left to right—Dr. H. E. Kingman, Jr.; Dr. S. F. Scheidy; Mr. George P. Larrick, FDA; Dr. D. J. Anderson; Dr. C. R. Durbin, FDA.

Left to right—Colonel M. B. Starnes, WRAIR; L. Meyer Jones; Lt. Colonel C. M. Barnes, AEC; Colonel R. R. Miller, SGO.

Left to right—Dr. D. J. Anderson; Colonel W. D. Shipley, SGO; Colonel Fred D. Maurer, AFIP.

Agricultural Marketing Service	Mr. O. V. Wells, administrator Mr. Roy Lennartson Mr. Herman Miller Dr. R. D. Wegner
Agricultural Research Service	Dr. Howard W. Johnson, director, Animal Disease and Parasite Research Division Dr. R. J. Anderson, director, Animal Disease Eradication Division Dr. M. R. Clarkson, associate administrator Dr. W. L. Popham, deputy administrator Dr. C. D. Van Houweling, assistant administrator Dr. Frank Todd, assistant to the administrator Dr. L. C. Heemstra, director, Animal Inspection and Quarantine Division Dr. John M. Hejl, assistant director, Animal Inspection and Quarantine Division Dr. Charles G. Grey, deputy director, State Experiment Stations Division Dr. C. H. Thompson, Jr., principal veterinarian, State Experiment Stations Division
National Institutes of Health	Dr. Preston Holden, chief, Laboratory Aids Branch Dr. Raymond J. Helvig, executive secretary, Surgery Study Dr. Joe W. Atkinson, assistant chief, Laboratory Aids Branch
Food and Drug Administration	Mr. George P. Larrick, commissioner Dr. C. R. Durbin, veterinary medical director
Pan American Sanitary Bureau	Dr. Earl C. Chamberlayne, veterinary public health consultant
Office of the Surgeon General	Colonel R. R. Miller, assistant for veterinary services Colonel W. D. Shipley, assistant chief, Veterinary Division
Armed Forces Institute of Pathology	Colonel F. D. Maurer, chief, Veterinary Pathology Division
Walter Reed Army Institute of Research	Colonel M. B. Starnes, director, Veterinary Medicine
Atomic Energy Commission	Lt. Colonel C. M. Barnes, Aircraft Nuclear Propulsion Office

Among the AVMA officials and staff members were:

Dr. D. J. Anderson, Chairman of the Board
Dr. S. F. Scheidy, AVMA president
Dr. E. E. Leasure, AVMA president-elect
Dr. H. E. Kingman, Jr., AVMA executive secretary
Dr. D. A. Price, AVMA editor-in-chief
Brig. General J. A. McCallam, AVMA Washington representative
Dr. James R. Hay, AVMA director of professional relations
Dr. L. Meyer Jones, AVMA director of scientific activities

Animal Care Panel's Fall Meeting to Convene in St. Louis

The eleventh annual meeting of the Animal Care Panel will be held at the Sheraton-Jefferson Hotel in St. Louis, Mo., Oct. 26-28, 1960. This is the first time that the Panel has met in St. Louis.

The program committee is arranging for papers on the basic aspects of animal care supplemented by reports dealing with the latest findings in this rapidly changing and expanding field. Movies related to animal care will be shown in a special theater set up in the hotel.

Once again this year, there will be the president's reception sponsored by the exhibitors. A special added event will be the Griffin Award Banquet honoring the recipient of the highest honor in animal care.

The chairman of the local committee is Dr. James Corbin of the Ralston Purina Company, 835 S. 8th St., St. Louis, Mo. For further information, programs, or exhibit information, contact: Dr. Robert J. Flynn, Secretary of the Animal Care Panel, Box 299, Lemont, Ill.

Among the States and Provinces

Colorado

DENVER—DR. E. S. COX PROMOTED TO VETERINARIAN IN CHARGE.—The appointment of Dr. E. S. Cox as veterinarian in charge in Denver's Animal Disease Eradication Division, became effective March 6, 1960. Prior to his appointment, he had been assistant veterinarian in charge at the Denver station from 1955.

Dr. Cox was born at Arab, Ala., in 1922, and a few years later moved to Blountsville, Ala., where he received his high school education. He entered the Alabama Polytechnic Institute (now Auburn University) and received his D. V. M. degree in 1944.

He engaged in private practice at Albertville, Ala., until 1949, at which time he accepted an assignment in Mexico with the foot-and-mouth disease eradication campain. After one year in Mexico, he was transferred to Phoenix, Ariz., with the Bureau of Animal Industry, where he remained until 1954. He was transferred to Jefferson City, Mo., to participate in the first Veteri-

Dr. E. S. Cox

nary Administrator Development Program. Later he was transferred to Denver as assistant veterinarian in charge.

Dr. Cox is a member of the Colorado V. M. A. and the National Association of Federal Veterinarians.

District of Columbia

WASHINGTON—DR. L. F. VAN GORDER REASSIGNED TO THE WASHINGTON STAFF.—The appointment of Dr. L. F. Van Gorder as assistant chief staff officer, Special Diseases Eradication, became effective on April 17, 1960. He was formerly staff assistant in the Special Diseases Eradication Section.

Dr. Van Gorder was born in Welland, Ont., in 1911 and received his early education in Ontario and Colorado. He served through World War II with the Royal Canadian Artillery in the European and Mediterranean theaters and, in 1944, attended the

Dr. L. F. Van Gorder

ninth Junior War Staff Course, Royal Military College, Kingston, Ont.

In 1945, he entered the Ontario Veterinary College, University of Toronto, graduating in 1949. Following graduation, he served with the USDA, Bureau of Animal Industry in Maine, the West Virginia State Department of Agriculture, and the State of

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Some of the Speakers at the Third Annual Florida Conference for Veterinarians

Top row (left to right)—Drs. W. R. Pritchard, Univ. of Florida; Robert Kirk, Cornell Univ.; Hoyt Hall, Tampa; Martin Hines, Raleigh, N.C.; Wilford Bailey, Auburn Univ.; George Mather, Univ. of Minnesota; James Corbin, St. Louis, Mo.; Maynard Spear, Iowa State.
Front row—Mr. Reid Wilcox, Ocala; Drs. S. F. Scheidy, Bryn Mawr, Pa.; W. R. Riser, Kensington, Md.; E. Wynne Jones, Oklahoma State; Donald Cooperrider, Kissimmee.

Delaware. In 1951 he re-entered federal service in Delaware. In 1953 he was transferred to Missouri and was appointed staff assistant in the Tuberculosis Eradication Section, Washington, D. C., in 1958. He later served in the same capacity with the Special Diseases Eradication Section.

Dr. Van Gorder resides in Herndon, Va. He is a member of the AVMA, the U.S. Livestock Sanitary Association, and the National Association of Federal Veterinarians.

Florida

GAINESVILLE—THIRD ANNUAL VETERINARY CONFERENCE.—Two hundred and thirty-four veterinarians from the Southeast attended the Symposium on Diseases of Young Animals which was the subject of the Third Annual Florida Conference for Veterinarians held at the University of Florida, April 30-May 1, 1960.

Care, management, nutrition, infectious diseases, and metabolic and parasitic diseases of foals, calves, pigs, dogs, and cats were covered by speakers from ten states and the Colleges of Agriculture and Medicine, at the University of Florida.

Proceedings of the conference will be published and available upon request.

Indiana

HAMMOND—CALUMET AERA ASSOCIATION HOLDS ZOONOSES CONFERENCE WITH PHYSICIANS.—Both physicians and veterinarians attended the recent Calumet Area V.M.A. meeting on public health. Purpose of the joint-session was to illustrate how veterinarians and physicians can benefit each other in combatting the zoonoses. Present were 75 physicians and veterinarians.

Dr. James Steele, D.V.M., of the U. S. Public Health Service in Atlanta, Ga., was the keynote speaker. He pointed out that a large number of diseases, such as internal parasites, rabies, parrot fever, tuberculosis, and ringworm are transmissible from animals to human beings.

He stressed the fact that several intensified investigations are under way in studies of heart disease, cancer, strokes, leukemia, and mental diseases of animals to see if these ailments can be related to man—so far as cause and cure are concerned. Dr. Steele noted that placement of songbirds and small rodents in various cities is currently being done to study air pollution and its damages, if any, to man.

Officers of the Association are: Drs. Harold M. Okone, Gary, president; Richard Pliske, LaPorte, president-elect; Bernard Meyerowitz, Valparaiso, vice-president; and Bruce Sharp, Hobart, secretary-treasurer.

s/David P. COOLEY, *Correspondent.*

This group of physicians and veterinarians are talking over the ailments that their respective "patients" have in common and seeking ways to join forces to combat zoonotic diseases at a recent Calument Area V.M.A. meeting. Left to right—Drs. P. J. Rosenbloom, Gary, city health commissioner; Harold Okone, president of the C. A. V. M. A.; James Steele, chief veterinarian of the U.S. Public Health Service in Atlanta, Ga.; and Dr. Harry J. Magrane, Jr., president of the Indiana V.M.A.

Kansas

MANHATTAN—Clients at Kansas State University's Dykstra veterinary hospital will soon be able to spend their waiting time listening to high fidelity music.

Equipment for the system was donated to the veterinary school by Mr. and Mrs. Harry Woods of New York City. Mr. Woods, a famous song writer, composed such hits as "When the Red, Red Robin Comes Bob, Bob Bobbin' Along." Their son, Dr. John M. Woods (KSU '58), now is practicing at Prescott, Ariz.

When installed, the hi-fi system will send classical and semiclassical music into the lobby of the clinic to relieve the tedium of lobby waiting. The clinic is one of the busiest places on the Kansas State campus and often ten to twenty people are waiting to have livestock or pets treated. More than 35,000 cases were treated at the clinic during the past year.

Montana

BOZEMAN—DR. HADLEIGH MARSH HONORED AT COLLEGE COMMENCEMENT EXERCISES.—An honorary Doctor of Laws degree was conferred upon Dr. Hadleigh Marsh (GWU '12), professor emeritus of veterinary pathology at Montana State College and internationally recognized authority in the field of veterinary science, at Montana State's commencement exercises, June 6, 1960.

Dr. Marsh has been the recipient of numerous honors in recent years. Last fall, he received an honorary Doctor of Science degree from the University of Pennsylvania and, a year ago, the Animal Health Institute presented him with its distinguished research service award. Additionally, he has received the Twelfth International Veterinary Congress Citation and the Centennial Award from Michigan State University.

Prior to Dr. Marsh's graduation from George Washington University in 1912, he had attended the University of Chicago, graduating cum laude. He served as bacteriologist-pathologist for the Montana Sanitary Board from 1919 until 1929 when he was appointed head of the Veterinary Research Laboratory at Montana State College. In 1950, Dr. Marsh resigned as laboratory head to devote full time to research.

Since his retirement, he has continued to work at the laboratory as a full-time research member for the state livestock sanitary board. Dr. Marsh has devoted much of his research to plants poisonous to livestock and to infectious and parasitic diseases of cattle, sheep, and horses.

He has been president of the Montana V.M.A., the Intermountain V.M.A., and the Research Workers Conference in Animal Diseases. Dr. Marsh is a member of the AVMA Council on Research, having been initially elected to the Council in 1946. He also has served on the Committee on Veterinary Biological Products, the forerunner of the present Council on Biological and Therapeutic Agents.

New York

PEARL RIVER—DR. F. A. GRENFELL RETIRES FROM U.S.D.A.—Dr. Fred A Grenfell, inspector in charge of the Pearl River, New York veterinary biological products inspection station of the U.S.D.A., retired from the Animal Inspection and Quarantine Division in December, 1959, after having completed more than 40 years of devoted service in biologics inspection.

Dr. Grenfell has been one of the most progressive employees in the field of biologic production. There have been great advances in this field in the last 40 years, and Dr. Grenfell has been one of the leaders in obtaining and applying proper rules for the inspection and efficacy of such products. He is recognized as an authority on developing inspection procedures.

As a result of his keen insight into design for laboratory facilities, many commercial licensees were able to save thousands of dollars in the construction and remodeling costs of their premises. His advice also insured that such facilities would be satisfactory for the production of biologics.

A native of Washington, D.C., Dr. Grenfell attended George Washington University there and received his D.V.M. degree in 1914. His first assignment with the USDA was in Chicago with the Meat Inspection Service. He transferred to the virus serum control division in 1916 and, with the exception of service as a captain in the Veterinary Corps during World War I, has been engaged in biologic inspection until his retirement.

s/L. C. HEEMSTRA, *Correspondent.*

North Carolina

RALEIGH—N.C. STATE COLLEGE PROFESSOR, DR. J. C. OSBORNE, RECEIVES AWARD.—Dr. J. Clark Osborne, a research professor in the

veterinary section of North Carolina State College, has been awarded a special Postdoctoral Research Fellowship by the U.S. Department of Health, Education, and Welfare.

The award covers a one-year period for advanced study and research which began on June 1. Dr. Osborne is conducting his studies at Duke University's School of Medicine, under the sponsorship of Dr. Wiley Forbus in the Department of Pathology. He is concentrating largely on the basic problems concerned with tissue inflammatory reaction.

Dr. J. Clark Osborne

Dr. Osborne received a B. S. degree from Virginia Polytechnic Institute, an M. S. degree from the University of Maine, and then a D.V.M. degree from Michigan State University in 1949. He served four years with the Army anti-aircraft artillery, principally in England and the North African, Middle East Theater in World War II.

During the past 11 years at North Carolina State College, Dr. Osborne has been in charge of the animal pathology phases of the animal industry teaching and research program. He has lectured to numerous livestock producer groups and is the author of more than 50 articles and scientific reports on veterinary science and animal health.

Dr. Osborne has been granted a leave of absence from the State College in order to conduct the study.

s/Edward G. Batte, *Head, Veterinary Section, N.C. State College.*

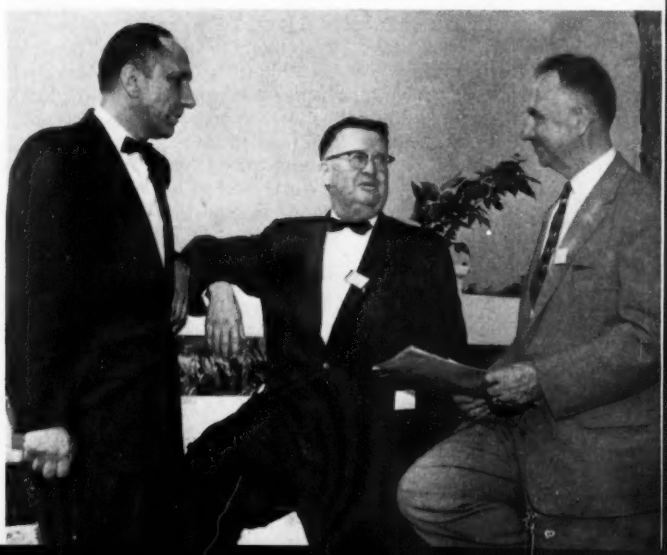
Pennsylvania

New Bolton Center—U.P. Holds Conference on Farm Animal Diseases.—New findings on animal health and new directions of research in the field of veterinary medicine were graphically illustrated, May 24, at a demonstration conference on "Diseases of Farm Animals in Pennsylvania," held at the University of Pennsylvania School of Veterinary Medicine's New Bolton Center, in Chester County.

More than 100 guests, representing Pennsylvania's animal industry groups, the General Assembly, state administrative departments, and alumni of the school, attended the special half-day program.

Veterinary leaders confer at the demonstration conference on diseases of farm animals in Pennsylvania, held at the University of Pennsylvania School of Veterinary Medicine's New Bolton Center, near Kennett Square, in Chester, County.

Shown here (left to right)—Dr. Richard C. Guise, Harrisburg, president-elect, Pennsylvania V.M.A.; Dr. Edwin D. Tuckerman, Plymouth Meeting, 1959-1960 president of the state veterinary group; Dr. Samuel F. Scheidy, Bryn Mawr, president, AVMA.



In the afternoon session, four areas of disease in farm animals were described and demonstrated by research investigators from the School of Veterinary Medicine. Following each talk an investigator from the School of Medicine spoke briefly on related problems in man.

A New Approach to the Solution of Mastitis

Many cows that have no clinical signs of disease are found to be infected with a mastitis-causing bacteria, Dr. James P. Murphy, research professor of veterinary medicine, said in describing research on this disease which he and his colleagues are pursuing in the new mastitis research laboratory at the new Center.

A relatively small number of known microbial agents, he said, are responsible for 99 per cent of mastitis. Since these agents have mostly been isolated, research in this field must now center on the basic nature and characteristics of mastitis, rather than only on means of curing diseased cows, Dr. Murphy stressed.

He suggested that detailed investigations of why some cows are uninfected, why some infected cows are not diseased in the clinical sense, why other cows become seriously sick, and other such questions, should throw light on the basic nature of mastitis and could lead to effective means of preventing or lessening its inroads on the dairy herd.

Cancer in Dairy and Beef Cattle

Some cow families seem to have a predisposition to cancer, with the disease recurring again and again in a single herd, Dr. Robert R. Marshak, professor of veterinary medicine, said.

"Because of the growing practice of artificial insemination, a genetically predisposed bull could have a profound impact on an entire breed," Dr. Marshak stated. "It might take years and millions of dollars to clear out resulting cancer-predisposed offspring."

Dr. Marshak outlined the research program, supported by grants from the American Cancer Society, to learn the nature of "cancer predisposition" among cattle and to discover "if the original cause of this particular cancer is a virus."

Poultry Cancer

Dr. Alfred M. Wallbank, research assistant professor of microbiology, spoke on the research being done on the "avian leukosis complex" of cancer viruses. This disease, responsible for an estimated $80 million yearly loss to the country's poultry industry, seems to be increasing on Pennsylvania farms and is showing up more frequently in younger chicks, Dr. Wallbank said.

Working with a "sister" virus, sarcoma 13, first isolated by Dr. Evan L. Stubbs of the School of Veterinary Medicine, scientists at New Bolton Center are cultivating the disease in chicks in order to study its relationship to lymphomatosis, Dr. Wallbank said.

Heart Diseases in Animals

Heart sounds in healthy and diseased animals were heard and "seen" by guests at the conference, during the demonstration talk by Dr. David K. Detweiler, who heads the University's comparative cardiovascular study unit at the School of Veterinary Medicine.

Dr. Detweiler and his colleagues brought recorded heart sounds over loud speakers, at the same time demonstrating the sounds "visually" with tracings, similar to sound track tracings, displayed on a cathode-ray oscilloscope.

The method used for determining an animal's cardiac output was also demonstrated. In his remarks, Dr. Detweiler stressed the importance of studying the prevalence rate of various diseases over wide geographic areas in many species of animals and pointed to the current lack of such knowledge about heart disease except in the case of man. He listed "round heart disease" in poultry and "sudden cardiac death" in swine as the most economically important heart ailments in farm animals.

Tennessee

NASHVILLE—STATE ASSOCIATION CONVENES. —The 52nd annual meeting of the Tennessee V.M.A. was held at the Noel Hotel, Jan. 10-12, 1960. One hundred and forty-nine registered.

Speakers and their respective topics included: Drs. D. O. Jones, Ohio State University—cooperative disease control programing and the veterinarian as an epidemiologist; James Lieberman, USPH, Atlanta, Ga.—continuing education for the veterinarian and the CDC center; C. T. Mason, Little Rock, Ark.—practical aspects of beef cattle practice; Wayne Riser, Kensington, Md.—hip dysplasia and the veterinarian and interesting case reports; J. E. English, Uni-

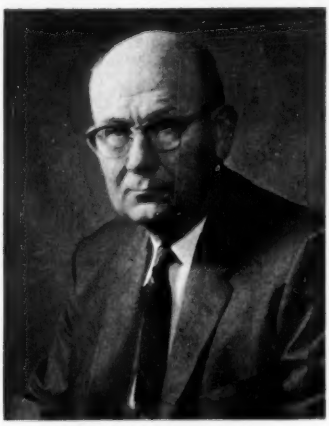
versity of Missouri—cases seen on ambulatory clinic; E. E. Leasure, AVMA president-elect, Manhattan, Kan.—organized veterinary medicine; Louis Leonpacher, Lafayette, La.—thirty years of successful anthrax control; and John Sickles, Schering Corporation—fulvicin.

Two panel discussions on large and small animals, respectively, were also held during the scientific portion of the program.

Veterinarian of the Year
Dr. W. R. Lawrence

Dr. W. R. Lawrence of Dyersburg was selected as "Veterinarian of the Year" for 1960 by the Tennessee V.M.A. Since he was ill and unable to attend the conference, his acceptance of the Award was made by Dr. E. M. Spence of Jackson.

Dr. Lawrence graduated from St. Joseph's Veterinary College in 1923. For ten years thereafter, he engaged in general



Dr. W. R. Lawrence

practice in Mississippi and then went into regulatory work for one year within the state. Dr. Lawrence did brucellosis and tuberculosis testing in Tennessee for three years and for tuberculosis in California for two years. He entered general practice in Dyersburg on Oct. 1, 1943.

In 1950, Dr. Lawrence served as president of the Tennessee V.M.A.

Association's Roster

Newly elected officers of the Association are: Drs. W. C. Cook, Knoxville, president; H. W. Connaughton, South Fulton, vice-president; C. E. Byrd, Fayetteville, first vice-president; M. L. Farris, Morristown, second vice-president; Alex Leech, Jackson, third vice-president; and H. W. Hayes, Knoxville, secretary-treasurer.

Virginia

BLACKBURG—DR. W. B. BELL CHOSEN PRESIDENT of State's Science Acadamy.—Dr. Wilson B. Bell was elected president of the Virginia Academy of Science at its annual meeting in May. Dr. Bell graduated from the New York State Veterinary College, at Cornell University, in 1939, and has

Dr. Wilson B. Bell

since served on the faculties of the University of California and the Virginia Polytechnic Institute.

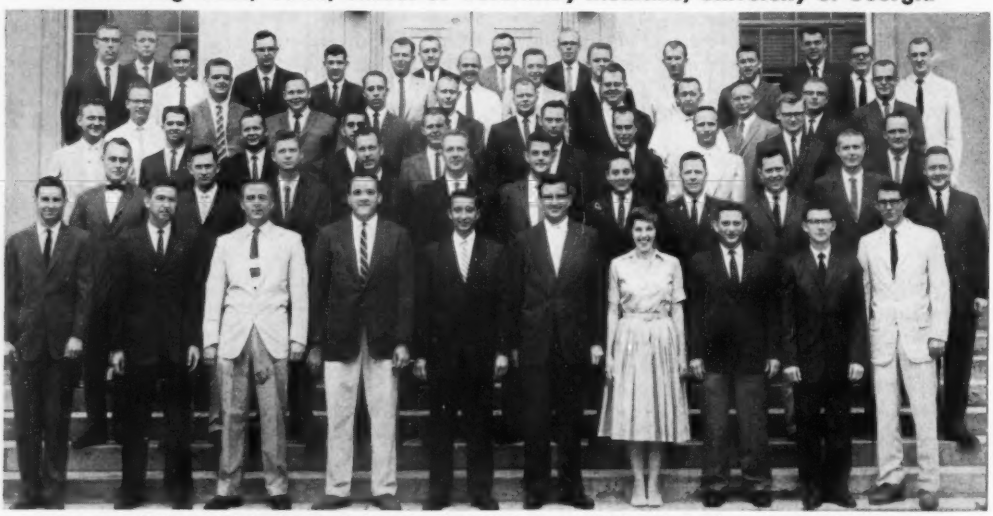
He is now associate director of the Virginia Agricultural Experiment Station, at the Virginia Polytechnic Institute. Dr. Bell is a member of the AVMA and the Virginia V.M.A., of which he is currently vice-president.

Commencements

University of Georgia.—At the 1960 commencement exercises of the School of Veterinary Medicine, University of Georgia, the following 61 candidates were presented for the D.V.M. degree:

Henry M. Anderson	John Brown
Donald C. Andrews	Lamar E. Cannon
Edwin H. Blackburn	Charles L. Cassidy

Graduating Class, 1960, School of Veterinary Medicine, University of Georgia



Front row (left to right)—Custin B. Lowery, Gerald B. Guest, William D. Stafford, Jeremy M. Succi, Gary F. Farmer, Brunson M. Westbury, Dorothy M. Kalet, Bert B. Kalet, Hugh M. Powell, Peter S. Loizeaux. Second row—Robert S. Hardwick, Daniel J. Moncol, Alvin F. Moreland, Zachary T. Millsap, Jr., David R. Fulton, William A. Webb, Charles L. Cassidy, James D. Tanner, William M. Lee, William W. McPherson, Dock F. Dixon, Jr.

Third row—Jack R. Whittaker, Ezekiel F. Thomas, Jr., Hughes M. Sims, Larry M. Richman, Harold D. Johnson, Lamar E. Cannon, William G. Hill, William H. Clark, John M. Herrman, Henry M. Anderson. Fourth row—Neil D. Porter, Donald C. Andrews, Edwin H. Blackburn, Daryl C. Johnson, Frank D. Taylor, Andrew F. Stringer, Burton G. Maxfield, George L. Hunnicutt, Leland S. Morley, Edward G. Griffin, A. Clinton Lavender, Jr.

Fifth row—David W. Dreesen, Billy S. Perryman, John Brown, Don H. Gwynn, Jay W. Gilpin, John I. Gray, Amos E. Palmer, Charles S. Gue, Jr., James A. Jarrett, James G. Flanagan, Richard M. Hough, Charles E. Hamner, Jr.

Sixth row—Eddie Hodges, John T. Meyer, William F. Meyer, James A. Edison, Jr., William F. Ragland, III.

Listing continued from bottom of page 151 . . .

William H. H. Clark
Dock F. Dixon, Jr.
David W. Dreesen
James A. Eidson, Jr.
Gary F. Farmer
James G. Flannagan
David R. Fulton
Jay W. Gilpin
John I. Gray
Edward G. Griffin
Charles S. Gue, Jr.
Gerald B. Guest
Don H. Gwynn
Charles E. Hamner, Jr.
Robert S. Hardwick
John M. Herrmann
William G. Hill
Eddie Hodges
Richard M. Hough
George L. Hunnicutt
James A. Jarrett
Daryl C. Johnson
Harold D. Johnson
Bertram M. Kalet
Dorothy M. Kalet
A. Clinton Lavender, Jr.
Willam M. Lee
Peter St. John Loizeaux
Custin B. Lowery, Jr.
Rembert L. McLenson
William W. McPherson
Burton G. Maxfield
John T. Meyer
William F. Meyer
Zachery T. Millsap, Jr.
Daniel J. Moncol
Berry W. Moore
Alvin F. Moreland
L. Scott Morley
Amos E. Palmer
Billy S. Perryman
Neil D. Porter
Hugh M. Powell
William L. Ragland, III
Larry M. Richman
Hughes M. Sims
Willam D. Stafford
A. Fred Stringer
Jeremy M. Succi
James D. Tanner
Frank D. Taylor
Ezekiel F. Thomas, Jr.
Willam A. Webb
Brunson M. Westbury
Jack R. Whittaker

• • •

University of Illinois.—At the 1960 commencement exercises of the College of Veterinary Medicine, University of Illinois, the following 41 candidates were presented for the D.V.M. degree:

Kenneth P. Altera
Robert E. Bratthauar
Charles W. Brown
Samuel E. Clem, Jr.
LeRoy F. Erickson
Donald P. Ferlicka
Kermit W. Frailey
Melvin D. Geiger
Albert Guminski
William J. Harvey
Max A. Hughes
Raymond J. Husmann
Robert G. Jackson
Harold D. James
John L. Knight
William R. Kobrow
Ronald J. Koiar
Adam C. Kostecki
Nelly E. Lee
Albert A. Lewis
Dennis K. Mann
Lyndel R. Matthews
Ray E. Miller
Earl E. Montgomery
Joseph L. Musolino
Robert R. Pensinger
David M. Rash
Donald G. Reeder
Robert E. Reichard
Russell N. Reiling
Winfield L. Samuelson
Harley D. Schnowske
Paul B. Smith
Richard S. Spira
Charles A. Starling
Roger C. Stephens
Virden L. Trotter
Phillip D. Watson
Thomas P. White
Lee O. Wilson
Byford E. Wood

Graduating Class, 1960, College of Veterinary Medicine, University of Illinois

Top row (left to right)—Lyndel R. Matthews, Roger C. Stephens, Adam C. Kostecki, Charles W. Brown, Winfield L. Samuelson, Virden L. Trotter, Robert E. Bratthauar, Leroy F. Erickson, Russell N. Reiling, Lee O. Wilson.

Second row—Donald P. Ferlicka, John L. Knight, Albert Guminski, Earl E. Montgomery, William J. Harvey, Ray E. Miller, Kermit W. Frailey, Ronald J. Kolar, Kenneth P. Altera.

Third row—Melvin D. Geiger, Harley D. Schnowske, David M. Rash, Philip D. Watson.

Fourth row—Richard S. Spira, Samuel E. Clem, Jr., Max A. Hughes, Robert R. Pensinger, Carl A. Brandly, dean, Donald G. Reeder, Raymond J. Husmann, Robert E. Reichard, William R. Kobrow.

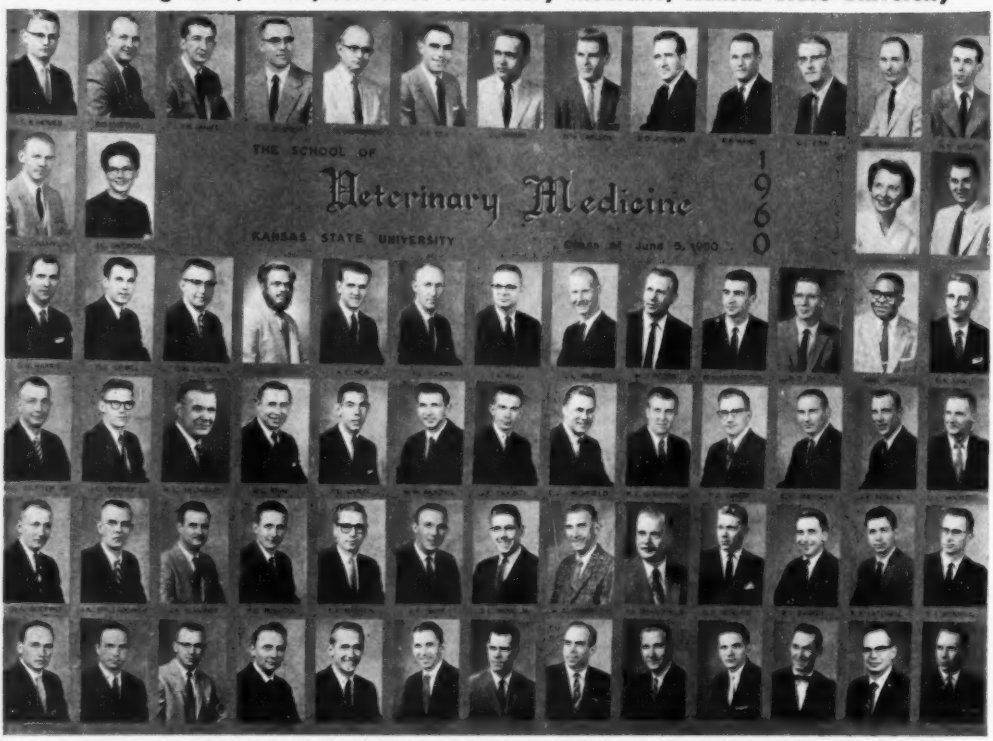
Fifth row—Joseph L. Musolino, Albert A. Lewis, Dennis K. Mann, Charles A. Starling, Thomas P. White, Paul B. Smith, Nelly E. Lee, Robert G. Jackson, Byford E. Wood, Harold D. James.

• • •

Kansas State University.—At the 1960 commencement exercises of the School of Veterinary Medicine, Kansas State University, the following 69 candidates were presented for the D.V.M. degree:

Richard D. Bair
Gene Berghaus
Edward J. Bicknell
William C. Bogenschultz
Richard A. Boster
Paul E. Brassfield
James R. Brighton
David M. Carlson
Bruce C. Champlin
Tracy L. Clark
Lonnie S. Crichfield
Joseph F. Cukjati
Alfred E. Davis
Bruce C. Detter, Jr.
Eugene E. Dressler
Charles E. Eck
Mark P. Elliott
Douglas H. Erbeck
Robert L. Evans
Arthur W. Gillum
Calvin D. Glenn
Warren A. Godfrey
Robert V. Goodweiler
Roy B. Hand
Karl R. Hansen
Stanley G. Harris
Robert D. Harting
Glenn T. Hartke
James K. Isom
Frank B. James
Stanley D. Johnson
John B. Jones
Daniel C. King
Bert R. Lewis
Orival W. Linder
Leighton L. Linn
Phil D. Lukert
Aura E. McConnell
Marvin L. McCreary
William L. Mengeling
Ralph W. Mitchell
Larry K. Mosier
Albert E. New
Martin E. Nodurfth
Lowell L. Novy
Bhagirath R. B. Persaud
Walter J. Pitzer
Wayne W. Randall
Jerome K. Regier
George E. Ross, Jr.
Roy C. Russell
Hugh A. Schantz
Donald E. Seibel
Howard V. Sieler
Jose A. Simonet
Lucky C. Simpson
John J. Smiley
John O. Snyder

Graduating Class, 1960, School of Veterinary Medicine, Kansas State University



Top row (left to right)—L. K. Mosier, R. D. Harting, F. B. James, L. C. Simpson, G. Berghaus, C. E. Eck, J. J. Smiley, D. M. Carlson, S. D. Johnson, R. B. Hand, C. L. Zink, J. R. Brighton, H. V. Sieler.

Second row—B. C. Champlin, J. E. Swengel, A. E. McConnell, L. L. Linn.

Third row—S. G. Harris, D. E. Seibel, O. W. Linder, B. R. B. Persaud, A. E. New, T. L. Clark, J. A. Will, C. L. Ward, W. J. Pitzer, W. L. Mengeling, R. D. Bair, B. R. Lewis, R. N. Swanson.

Fourth row—B. C. Detter, Jr, J. O. Snyder, M. L. McCreary, D. C. King, J. V. Unruh, W. W. Randall, J. F. Cukjati, L. S. Crichfield, R. V. Goodweiler, P. D. Lukert, E. E. Dressler, J. K. Regier, D. C. Van Riper.
Fifth row—W. A. Godfrey, J. K. Stillabower, J. A. Simonet, R. C. Russell, K. R. Hansen, J. K. Isom, G. E. Ross, Jr., H. A Schantz, P. E. Brassfield, D. B. Witcher, D. H. Erbeck, R. W. Mitchell, E. J. Bicknell.

Sixth row—W. C. Bogenschultz, R. L. Evans, E. W. Weiss, G. T. Hartke, L. L. Novy, A. W. Gillum, J. B. Jones, A. E. Davis, M. P. Elliott, R. A. Boster, C. D. Glenn, M. E. Nodurfth, G. C. Wright, Jr.

Listing continued from the bottom of page 153 . . .

Jerry K. Stillabower
Robert N. Swanson
Jean E. Swengel
Jesse V. Unruh
Donald C. Van Riper
Clyde L. Ward
Earl W. Weiss
James A. Will
Don B. Witcher
Gill C. Wright, Jr.
Carl L. Zink

• • •

University of Missouri.—At the 1960 commencement exercises of the School of Veterinary Medicine, University of Missouri, the following 29 candidates were presented for the D.V.M. degree:

Charles L. Alber
Morton Antelman
Glenn D. Blackshaw
George L. Broshuis
James R. Campbell
William B. Chambers
S. Miles Dickson
Nathan E. Eskew
Robert L. Flentge
Floyd I. Greenwood
W. Paul Harvey
John L. House
Urban L. Kramer
Charles N. Leezy
Donald I. Mayfield
David F. Morris
Edgar J. Mueller
James C. Oliver
Michael L. Oshry
Kathryn Jo Osterholtz
Glen W. Patterson
Donald R. Paul
Edward N. Riley
Raymond M. Rosebrough
Hollis D. Smith
Robert J. Smith
Louis G. Tritschler
John F. Weggemann
David H. Wood

Graduating Class, 1960, School of Veterinary Medicine, University of Missouri

Top row (left to right)—Charles L. Alber, Morton Antelman, Glenn D. Blackshaw, George L. Broshuis, James R. Campbell, William B. Chambers, S. Miles Dickson.

Second row—Nathan E. Eskew, Robert L. Flentge, Floyd I. Greenwood, W. Paul Harvey.

Third row—John L. House, Urban L. Kramer, Jr., Charles N. Leezy, Donald I. Mayfield.

Fourth row—David F. Morris, Edgar J. Mueller, James C. Oliver, Michael L. Oshry, Kathryn Jo Osterholtz, Glen W. Patterson, Donald R. Paul.

Fifth row—Edward N. Riley, Raymond M. Rosebrough, Hollis D. Smith, Robert J. Smith, Louis G. Tritschler, John F. Weggemann, David H. Wood.

• • •

Ohio State University.—At the 1960 commencement exercises of the College of Veterinary Medicine, Ohio State University, the following 62 candidates were presented for the D.V.M. degree:

John Agle
Roger Augenstein
Russell B. Barker
Donald E. Bean
Richard Beckett
John Bridenbaugh
Neal Clapp
Victor G. Conger
James D. Conroy
Ronald DeRhodes
Larry Disher
W. Robert Doster
Robert Ewing
John Fessler
Frank C. Fraunfelter
Robert Furrow
Donald A. Gable
Anthony Gallina
John Gee
Lawrence J. Gfell
John Hannan
Jack Haydon
Don Haynam
Donald K. Hinkle
Keith R. Hull
Max E. Jester
Gary W. Johnson
Earl Jones
Richard F. Krajcer
Russell W. Laslocky
Gene Leverett
David McCauley
Robert Meister
Robert Miller
Paul Morris
Richard F. Murphy
Steven P. Pakes
Joseph F. Poppler
Ronald J. Prucha
Joseph F. Rapotec
Earl Ratliff
Robert Richmond
Fred Roesel
Mike Rohovsky
James F. Sautter
James Savoy
Rudolph G. Schneidhorst
Daniel Schramm
Donald H. Smith
Alvin L. Smollin
John Stoner
James Strayer
Albert Strouss
James D. Sweeny
John Thomas
Richard M. Thornton
Philip Weida
David L. Wilson
James H. Winner
Presley W. Winner
Howard D. Wright
Thomas D. Young

Graduating Class, 1960, Colege of Veterinary Medicine, The Ohio State University

State Board Examinations

HAWAII—Sept. 22-24, 1960, Honolulu, Hawaii. Deadline for applications is Aug. 22; the fee is $25. Dr. Wilson M. Pang, Secretary, 1683 Kalakaua Ave., Honolulu 14, Hawaii.

ILLINOIS—Dec. 19-21, 1960, Chicago, Ill. Office of the Department of Registration and Education, 160 N. LaSalle St., Chicago. Deadline for applications is Dec. 4, 1960; the fee is $20. Fredric B. Selcke, Superintendent of Registration, Capitol Building, Springfield, Ill.

KENTUCKY—July 25, 1960, Capitol Building, Frankfort, Ky. Deadline for applications is July 11; the fee is $25. For Applications and information, write: Mr. William E. Johnson, 319 Ann St., Frankfort, Ky. (A special June examination is usually given; the exact date has not been set.)

NEVADA—July 23, 1960, Tonopah, Nev. Deadline for applications was June 1; the fee is $10. Dr. E. H. Stodtmeister, 102 "B" St., Sparks, Nev.

NORTH DAKOTA—Oct. 12-13, 1960, Van Es Building, North Dakota Agricultural College, Fargo, N.D. Deadline for applications is about ten days prior to the examination date; the fee is $15. Dr. M. C. Hawn, Secretary, N. D. Veterinary Medical Examining Board, 1407-13th St. North, Fargo, N.D.

PUERTO RICO—Aug. 2, 1960, Division of Examining Boards. Comercio 452. Carrera's Building. San Juan, P.R. Deadline for applications is July 3; the fee is $10, the license fee is $5, and one P.R. Revenue Stamp of $1. Herminio Mendez Herrera, Secretary, Box 3271, San Juan, P.R.

Deaths

Star indicates member of AVMA

Clinton E. Burkholder (KCV '08), 78, Crawfordsville, Ind., died March 5, 1960.

Dr. Burkholder retired in 1952 from the USDA's Agricultural Research Service. He had served the Department for 36 years.

James A. Dickie (CVC '11), 81, Iron River, Mich., died March 5, 1960, following a stroke suffered five days earlier.

Born in Marinette, Wis., Dr. Dickie moved to the Iron River district in 1911. With the exception of six years when he served as County sheriff, Dr. Dickie had conducted his practice in Iron River.

George C. Eckley (CVC '92), 91, Monmouth, Ill., died Nov. 24, 1959.

Dr. Eckley was an original member of the Mississippi V.M.A., when it was formed over 55 years ago, and he served as its secretary for several years. Prior to his retirement from practice, he had practiced in Monmouth for over 30 years.

Samuel A. King (USC '14), 78, Knoxville, Tenn., retired USDA veterinarian, died March 9, 1960, after a lingering illness.

Dr. and Mrs. King had resided in Knoxville for the past 38 years. Upon his retirement 14 years ago, Dr. King had been chief meat inspector at the East Tennessee Packing Company having served the USDA for over 40 years.

Jacob B. Richter (UP '35), 48, Philadelphia, Pa., died March 6, 1960. For the past two years, he was veterinarian for the central district of the New Jersey Public Health Department.

Dr. Richter had been with the meat inspection division of the USDA for the 20 years prior to his New Jersey assignment. He had an M.S. degree in public health from Johns Hopkins University in Baltimore, Md.

Veterinary Military News

District of Columbia

WALTER REED ARMY MED. CENTER SITE OF 2ND NUCLEAR MEDICINE COURSE.—The second class of a new course in the veterinary aspects of nuclear medicine was held May 9-20, at Walter Reed Army Institute of Research in Washington, D.C.

Inaugurated last February, the course provides training for Army and Air Force veterinary officers in the areas of nuclear medicine where their professional skills will be required. Among subjects discussed were radiobiology, radiochemistry, radiopathology, and laboratory examination of foods contaminated with radionuclides.

Graduates of the 2nd nuclear medicine course are from left to right (front row)—Lt. Col. G. W. Vacura, course director; Col. C. H. Snider, assistant course director; Col. M. B. Starnes, director of the research institute's Division of Veterinary Medicine; Col. Charles W. Gollehon, USA; Col. William E. Bills, USAF.

Second row—Major W. R. Bilderback, USAF; Major W. A. Bridenstine, USA; Lt. Col. Charles H. Muniz, USAF; Major R. L. Hanson, USAF.

Third row—Capt. Aristide P. Catsaounis, Greek Army Veterinary Corps; Lt. Col. J. B. Couch, USAF; Capt. Raymond F. Sis, USAF; Lt. Col. Walter W. Fechner, USA; Lt. Col. William G. Brooks, USA.

Fourth row—First Lt. Donald W. Mattson, USA; First Lt. Ralph L. Cheney, USA; First Lt. Wendell H. Niemann, USA; First Lt. Bud C. Tennant, USA; Capt. William G. Wisecup, USAF; First Lt. Donald L. Houston, USA.

Women's Auxiliary

The 1960 Auxiliary Student Award Winners

This spring 19 outstanding seniors from 19 accredited veterinary colleges in the United States and Canada were presented with the AVMA Auxiliary Award in recognition of their contributions to the prestige of their colleges on their respective campuses (the twentieth accredited school, Purdue University, will graduate its first class in 1963).

Each recipient was awarded a certificate and a check for $50. The AVMA Auxiliary chose this achievement award because, as Mrs. C. M. Rodgers, vice-president for student awards, expressed it in the letters she wrote to each recipient, "we believe such campus activities can be a good indication of future community relations of great value to the individual and to the profession and the increased prestige of the veterinary schools is a valuable contribution toward interesting other people in entering the profession."

Past Achievements Lead to Future Triumphs

Her words could well be prophetic, as was evidenced by the diversity of activities each dean listed in the brief biographical sketch included with the young men's pictures.

Eight of the recipients (winners from Auburn, California, Iowa, Michigan, Ohio, Oklahoma, Pennsylvania, Texas) are reported as already having bachelor degrees in fields other than veterinary medicine. One, Jimmie L. Howard, from the A. and M. College of Texas, received his M. S. degree from Texas Technological College two years after he enrolled in the School of Veterinary Medicine at College Station.

Another, Adrian Russell Morrison, Jr., is a Phi Beta Kappa who ranks third in his class at the New York State Veterinary College, Cornell University. He was chosen because of his outstanding work as scoutmaster of a Boy Scout troop.

Several of the awardees, such as Robert Richmond from Ohio State University, have done outstanding work on college publications. He edited the *Speculum*, a student magazine. Roy A. Shultz, from Iowa State University, served as editor of the *I.S.U. Veterinarian*, and David Milton Rash, the University of Illinois' nominee for the Auxiliary Award, won the Hoskins Scholarship for his editorship of the *Illinois Veterinarian*.

The University of Pennsylvania's George Eyrich was selected chiefly for his activities as editor of the senior class yearbook, the *Scalpel*. Ontario Veterinary College, University of Toronto, selected Ronald L. Darling, who also participated in the preparation of his college's yearbook. At Tuskegee Institute, West Indian born George A. Hylton served in the capacity of business manager for the *Tuskegee Veterinarian*.

In the field of radio, James D. Burns from Washington State made his most valuable contribution to the profession with a daily program, "Farm Facts".

Other of the students were chosen for various reasons. William H. H. Clark of the University of Georgia participated in numerous campus activities and is listed in "Who's Who in American Colleges and Universities". Auburn University's Phillip Aaron O'Berry and Oklahoma State University's Thomas M. Mowdy were also chosen for "Who's Who in American Colleges".

Charles F. Coussens of Michigan State University and N. Eugene Eskew of the University of Missouri have been particularly active in the realm of public relations on their college campuses.

Harold Leigh from the University of California has combined participation in athletic activities with his interest in drama and journalism, while Lowell Lu Novy has been active in Kansas State's Band and A Capella Choir.

Dr. Ephem Jacques, dean of the School of Veterinary Medicine, University of Montreal, Quebec, states that Guy Farly was chosen for "his contribution to the social welfare of his classmates."

Richard Stanley Olson was the University of Minnesota's choice to receive the student award. In 1957 he was awarded the Order of the North Star, an All University Award as the highest recognition availble to student leaders at the University of Minnesota.

A note of tragedy was injected into the Achievement Awards program this year. The senior class at Colorado State requested that Lauretta J. Armer, wife of Frank C. Armer a member of the senior class and prior to her death herself a member of the class, be awarded posthumously, the Auxiliary Award. The check will be used to set up a memorial fund in Mrs. Armer's name at Colorado State. Mrs. Armer, a member of the Women's Auxiliary of the AVMA Student Chapter there, was killed in an automobile accident on March 12.

s/NANNETTE (MRS. A. M.) SIMPSON,
Auxiliary News Editor.

Reading columns from top to bottom (left to right) . . .

First Row

Phillip Aaron O'Berry
Auburn University

Harold Leigh
University of California

Lauretta J. Armer
(Posthumously)
Colorado State University

William H. H. Clark
University of Georgia

David Milton Rash
University of Illinois

Second Row

Roy A. Schultz
Iowa State University

Lowell Lu Novy
Kansas State University

Charles F. Coussens
Michigan State University

Richard Stanley Olson
University of Minnesota

Third Row

Nathan Eugene Eskew
University of Missouri

Adrian Russell Morrison, Jr.
Cornell University

Robert Richmond
Ohio State University

Thomas M. Mowdy
Oklahoma State University

Fourth Row

Ronald A. Darling
University of Toronto

George H. Eyrich
University of Pennsylvania

Guy Farly
University of Montreal

Fifth Row

Jimmy L. Howard
A.&M. College of Texas

George A. Hylton
Tuskegee Institute

Sixth Row

James Donald Burns
Washington State University

Illinois

SPRINGFIELD.—The eighteenth annual meeting of the Women's Auxiliary to the Illinois State V.M.A. met Feb. 14-17, 1960. Governor and Mrs. William Stratton entertained the Auxiliary at a tea in the Executive Mansion on February 15.

During the closing session of the Auxiliary's executive board meeting, a motion was passed to replace the elected membership secretary office with an appointive office of executive secretary, patterned after the state association and to work in close cooperation with the I.S.V.M.A.'s executive secretary. This action will be referred to in the next legislative council meeting.

Newly elected officers of the Auxiliary are: Mrs. E. C. Hannan, Maple Park, president; Mrs. A. R. Bott, Belleville, president-elect; Mrs. J. G. Peck, Park Ridge, vice-president; Mrs. J. J. Smith, Waverly, deputy president; Mrs. Charles Lindley, Oblong, secretary; Mrs. M. E. Davenport, La Grange, membership secretary; and Mrs. P. B. Meerdink, Galva, treasurer.—*Ill. Vet. Bull., 15, (March, April, 1960): 7.*

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BELLEVILLE.—The Women's Auxiliary to the Southern Illinois Veterinary Medical Association met April 28, 1960. Mrs. Richard Shilliday, president, presided over the business meeting.

Mrs. Carl Horstman of Collinsville was appointed public relations chairman. For entertainment, Mrs. Mary Ellen Treat of Massachusetts gave an interesting talk on the "United Nation's and It's Growing Pains."

s/MRS. L. H. HOLT, *Secretary.*

Kansas

WICHITA.—The Women's Auxiliary to the Kansas V.M.A. met at the Hotel Broadview, Jan. 10-12, 1960.

Mrs. F. H. Oberst, president, of Manhattan, conducted the business meeting. The following officers were elected: Mrs. T. J. Leasure, Lawrence, president; Mrs. James A. Porter, Jr., Fredonia, president-elect; and Mrs. Gordon T. Jamieson, Wichita, secretary-treasurer.

Mrs. Marty McCrery, president of the Student Auxiliary at Kansas State University, also reported on the activities of its 144 members to the Auxiliary.—*The Kan. Vet., 16, (Jan.-Feb., 1960): 15.*

New Jersey

ATLANTIC CITY.—The Women's Auxiliary to the Veterinary Medical Association of New Jersey held its annual meeting at the Hotel Claridge, March 30-31, 1960.

This marked the 25th anniversary of the Auxiliary. Charter members who were present were introduced and a brief history was read. As a special feature, each past-president was introduced and presented with a pin denoting her formerly held office.

Mr. Robert Nesbett, director of the "Miss America Pageant," was the guest speaker following a luncheon and informal fashion show. In the evening, the women joined their husbands at the annual banquet and dance. The next day, the Auxiliary toured historic Smithville Inn, a beautifully restored stage coach stop in nearby Absecon.

s/JANE E. NORTH, *Secretary.*

Past and Present Officers of the Auxiliary to the Kansas V.M.A.

Left to right—Mrs. T. J. Leasure, president; Mrs. F. H. Oberst, past-president; Mrs. G. T. Jamieson, secretary-treasurer; Mrs. S. L. Jackson, past-secretary-treasurer.

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PARKE-DAVIS

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MEETING WITH

ALL MEMBERS

ATTENDING THE

97th AVMA

ANNUAL

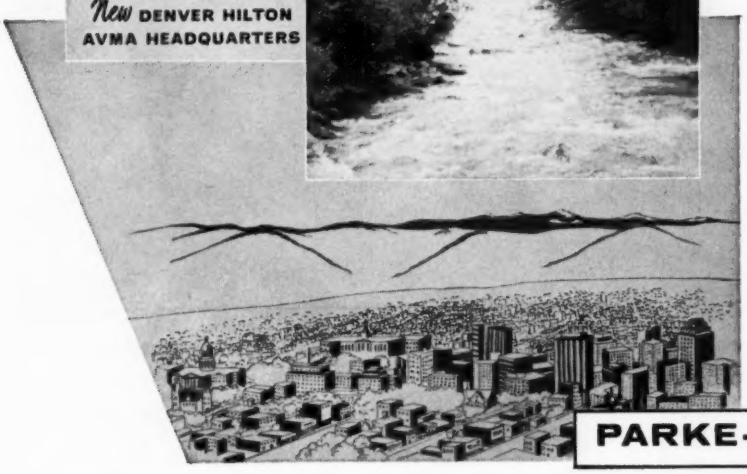
MEETING

DENVER

August 14-18

New DENVER HILTON

AVMA HEADQUARTERS



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PARKE, DAVIS & COMPANY, LTD.
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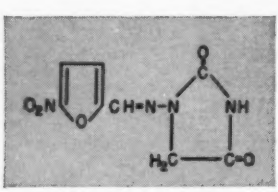
veterinary

FURADANTIN, a clinically important member of the unique nitrofuran family, is an ideal therapeutic agent in small-animal urinary tract infections and canine tracheobronchitis. "The drug [FURADANTIN] possesses a wide antibacterial spectrum and appears to lack the bacterial-resistance-producing potential of penicillin and other antibiotics."[1]

FURADANTIN displays unusual effectiveness against the majority of common urinary tract pathogens, including resistant strains of Pseudomonas sp., E. coli, and staphylococci. Its rapid rate of absorption and excretion following oral administration and specific affinity for the urinary tract—where it reaches high bactericidal concentrations in the urine—help explain why FURADANTIN is the drug of choice in urinary tract disease.

FURADANTIN exhibits marked antimicrobial activity and maintains the therapeutic response even in the presence of blood and pus that may be found in the urine of affected animals. Its exceptional solubility over a wide pH range avoids the likelihood of crystalluria. Superinfections with fungi, anaphylaxis and blood dyscrasias have not been reported in animals.

Thus with FURADANTIN the veterinary practitioner may now achieve a greater number of clinical recoveries in the daily management of small-animal urologic infections and canine tracheobronchitis.



EATON LABORATORIES, NORWICH, NEW YORK

WHAT IS YOUR *Diagnosis?*

Make your diagnosis from the picture below—then turn the page ▶

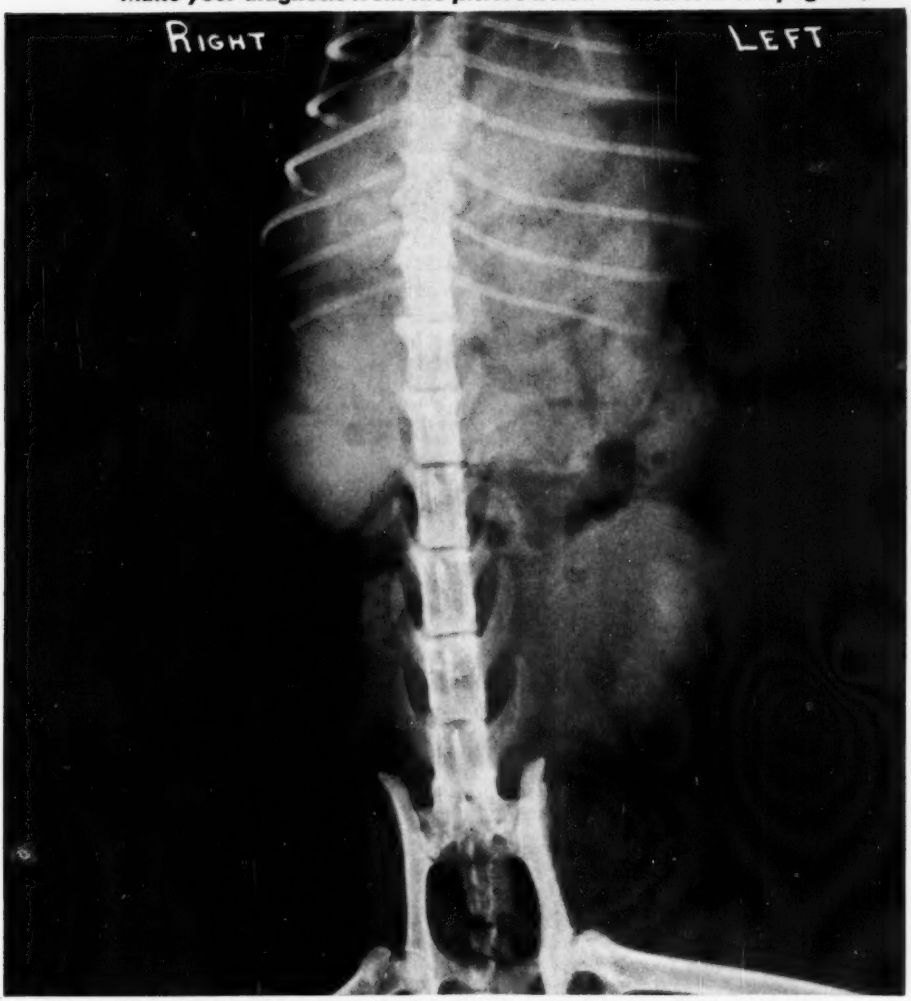
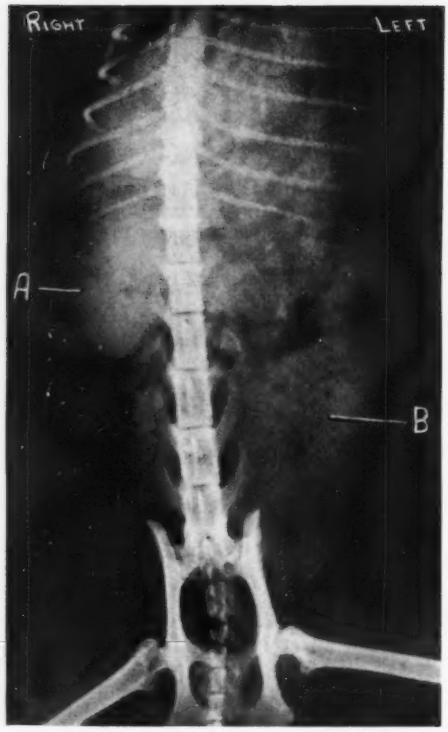


Fig. 1—Ventrodorsal radiograph of the abdomen of a cat taken immediately after 10 cc. of radiopaque contrast medium had been given intravenously.

History.—A female cat, 3 years old, which had never had kittens, developed a vaginal discharge that persisted for at least 3 months. The discharge contained blood and pus and was copious enough to stain the cover of the cat's bed. The odor of the urine was similar to that of a tomcat. Otherwise, the cat was in good health and flesh, although the owner thought the abdomen was somewhat distended. Two masses could be palpated in the abdomen. One, in the area of the right kidney, was movable, smooth, firm, and kidney-shaped, but was twice the size of a normal kidney. On the left side, the kidney could not be palpated but on the abdominal floor, midway between the ribs and the pelvis, was a soft, movable mass about kidney size. The cat was anesthetized and given 10 cc. of radiopaque contrast medium intravenously; immediately, a ventrodorsal radiograph of the abdomen was taken (fig. 1).



Here Is the Diagnosis

(Continued from preceding page)

Diagnosis.—The left kidney was absent but the mass on the left side was yet unidentified; no dye appeared either in the mass (fig. 2-B) or in the area where the left kidney would normally be located. The mass on the right side was outlined by the dye and appeared to be a kidney (fig. 2-A).

◀ Fig. 2—Ventrodorsal radiograph of the abdomen of a cat taken immediately after 10 cc. of radiopaque contrast medium had been given intravenously, showing (A) right kidney outlined by the dye; and (B) the mass on the left side free from dye.

Comment.—Another radiograph (not shown) taken 15 minutes later, showed the dye to have outlined the right ureter and the urinary bladder as well as the right kidney, but no dye was visible in the mass on the left side.

At laporatomy, the left kidney was not found. The left ovarian and uterine ligaments were present and seemed to originate from their normal position. Attached to these ligaments were a thick-walled, cystic mass, 5 cm. in diameter (which proved to be an ovary), and the left uterine horn which was distended with pus (pyometra). The ligament and horn connected with the cervix.

The right kidney was normal in shape and appearance, but was twice its regular size. The right ovary was normal in size, shape, and position, but the right uterine horn was absent although the uterine ligament was intact and extended from the right ovary to the cervix where it united with the left horn and ligament. The ovaries and affected uterine horn were removed and the cat recovered satisfactorily. The disagreeable odor of the urine disappeared after 2 weeks.

Reports of urogenital abnormalities in the cat are few. One report in the literature pertains to a cat with an aplastic left kidney and an occluded ureter attached to the neck of the urinary bladder. The adrenals, ovaries, and the uterus were normal.[1]

[1]Reis, R. H.: Renal Aplasia, Ectopic Ureter, and Vascular Anomalies in a Domestic Cat. Anat. Rec., 135, (Oct., 1956): 105-106.

This report was submitted by members of the staff of the Riser Animal Hospital, Skokie, Ill., and was prepared by Dr. Wayne H. Riser, D.V.M., M.S., Kensington, Md.

in small animals

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URINARY TRACT INFECTION: FURADANTIN therapy achieved clinical recovery in over 90% of the cases of acute or chronic urogenital disease in dogs and cats.[2] Pronounced symptomatic improvement occurred by the 4th day and complete recovery within 7-14 days.[3] Coles states, "One of the advantages of nitrofurantoin [FURADANTIN] in the treatment of canine nephritis is the fact that most microorganisms do not develop resistance to the drug, even after long periods of exposure to it."[4]

INDICATIONS: nephritis, cystitis, pyelonephritis; pre- and postoperative care of the urethra and bladder; prophylaxis in catheterized patients; and as an adjunct to surgical drainage in canine prostatic abscess.

CANINE TRACHEOBRONCHITIS: FURADANTIN constitutes modern, effective treatment for dogs with "kennel cough". When given orally for 5 days, FURADANTIN stopped coughing in 95% of 75 cases. In some animals, signs frequently subsided in 48 hours.[5] Mosier concludes, "In our experience, Furadantin has been considerably more effective than the various bacterins, antibiotics, vaccines, iodides, and chemotherapeutic agents which have been recommended for the treatment of tracheobronchitis in the past."[5]

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FURADANTIN Ora-Bols® Veterinary, provides 50 mg. FURADANTIN in an excipient containing dextrose. Bottle of 100, scored, 50 mg. Ora-Bols.

FURADANTIN Tablets Veterinary, bottles of 100, scored, 10 mg., and 100 mg. tablets.

FURADANTIN Oral Suspension Veterinary; provides 5 mg. FURADANTIN in each cc. Bottles of 60 cc.

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Ora-Bols is the Eaton tradename for small, bolus-shaped tablets.

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REFERENCES: 1. Michaelson, S. M., and Covert, M.: J. Am. Vet. M. Ass. 134:334 (Apr.) 1959. 2. Mosier, J. E., and Coles, E. H.: Vet. Med. 53:649 (Dec.) 1958. 3. Belloff, G. B.: Calif. Vet. 9:27 (Sept.-Oct.) 1956. 4. Coles, E. H., and Mosier, J. E.: Am. J. Vet. Res. 20:1020 (Nov.) 1959. 5. Mosier, J. E.: Vet. Med. 52:445 (Sept.) 1957.

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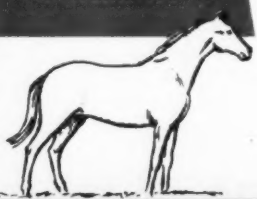

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Professional Activities of Veterinarians in The United States

A substantial shift in practice interest is shown by figures recently compiled from the AVMA Directory questionnaire requesting information for the 1960 edition just off the presses.

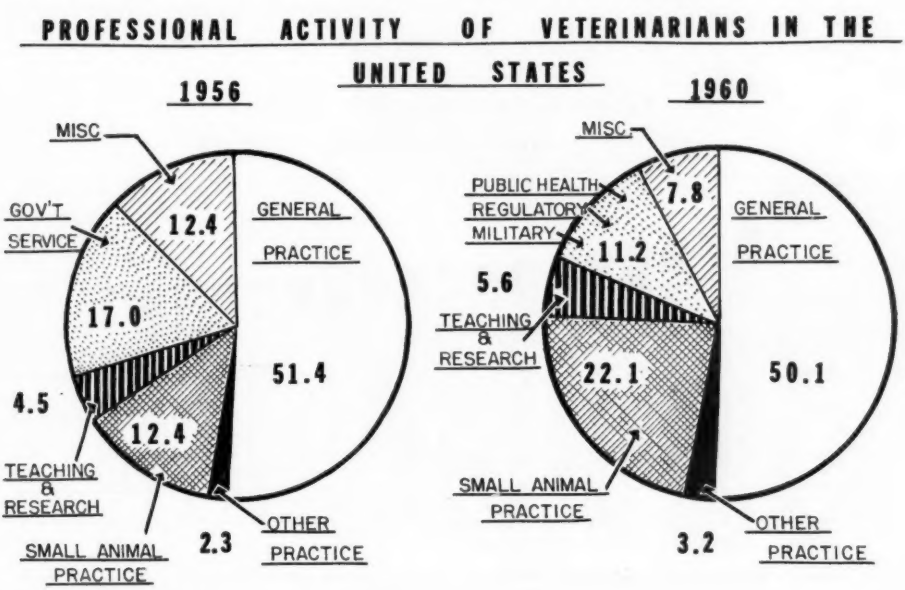
Today, one-half of the veterinarians in the United States are engaged in general practice and nearly one fourth limit their practices to small animals. Since 1956, the number of small animal practitioners has increased 78 per cent.

The reduction in government service employment during the interval from 1956 to 1960 can be explained, to some extent, by a revised method of collecting data which now permits more accurate classification of activities. In 1960, federal and state employees are identified by the type of work in which they are engaged, rather than grouped together under the heading of "Government Service." However, these figures confirm the generally accepted fact that a decreasing number of veterinarians are engaged in strictly regulatory programs.

The reduction in percentage credited to miscellaneous pursuits is also less in 1960 since only those responding to the survey have been included in this year's results; in 1956, 3.7 per cent were included as "no classification indicated."

Veterinarians Engaged In Various Professional Activities

	1956	1960
General practice	51.4%	50.1%
Small animal practice	12.4	22.1
Other types of practice	2.3	3.2
Teaching and research	4.5	5.6
Regulatory, military, public health	17.0	11.0
Miscellaneous	12.4	7.8
TOTAL	100.0%	100.0%



Council on Education—1960

Salaries of Faculty Members in Veterinary Colleges in the United States and Canada

In veterinary colleges in the United States and Canada, average faculty salaries in 1959-1960 range from $4,975 to $7,400 for instructors; $6,277 to $8,900 for assistant professors; $7,150 to $10,450 for associate professors; $7,900 to $14,000 for full professors; and $10,800 to $15,900 for professors who are heads of departments (*see* table 1 and chart 1).

The median salaries for each rank have increased approximately 37 per cent since 1953 - 1954, except in the case of instructors, where the increase has been 28 per cent during this period. The median salaries by two-year periods are shown (table 2).

TABLE 1—Average Salaries of Faculties in Veterinary Schools — 1959-1960

School	Instructor	Asst. prof.	Assoc. prof.	Prof.	Prof. & head of dept.
M	6,840	8,112	10,000	14,000	15,900
J	7,396	7,840	9,560	12,161	14,660
O	6,316	8,575	10,450	12,125	13,550
L	6,760	8,340	9,925	11,850	13,500
S	5,140	8,340	8,948	10,726	13,250
A	6,200	8,907	9,150	9,280	12,670
I	6,708	8,196	9,900	10,600	12,380
C	7,002	8,860	9,732	10,480	12,185
N	6,600	7,750	9,750	10,850	12,000
G	5,582	7,125	10,100	11,100	11,870
D	6,460	7,890	9,030	10,160	11,850
E	6,520	8,230	9,700	10,520	11,745
B	6,270	7,710	8,295	9,573	11,529
F	4,975	6,277	7,523	9,464	11,300
K	5,037	7,495	9,241	10,442	11,166
T	6,075	7,860	9,100	10,142	11,040
Q	6,780	7,360	8,650	9,756	10,960
R	7,400	8,500	9,200	9,200	10,800
H	5,850	6,850	7,150	7,900	-

TABLE 2—Median Salaries of Veterinary Faculties

	1953-54	1955-56	1957-58	1959-60
Prof. & head of dept.	8,730	9,147	10,635	11,985
Prof.	7,500	8,230	9,293	10,442
Assoc. prof.	6,800	7,375	8,740	9,280
Asst. prof.	5,830	6,325	7,198	7,890
Instructor	5,023	5,147	5,940	6,460

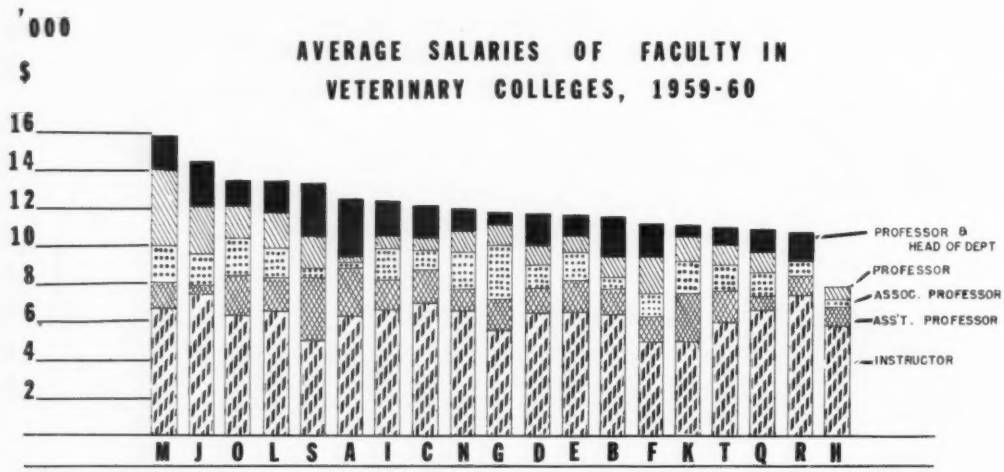
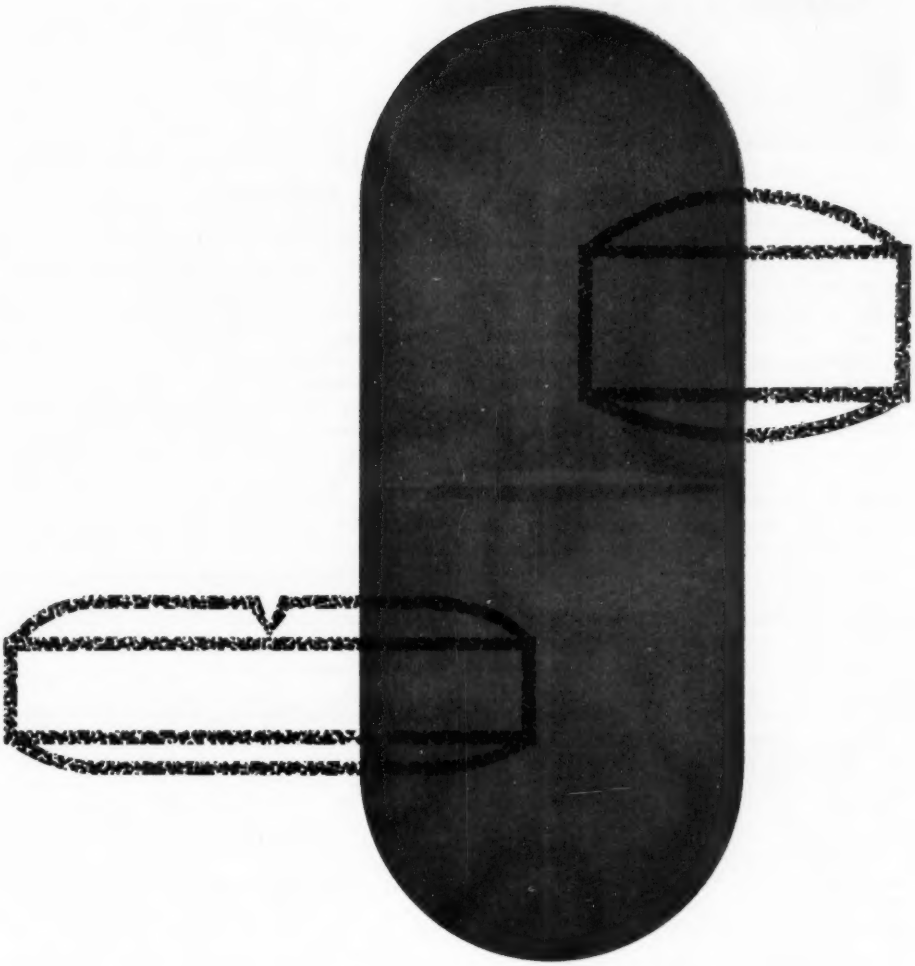


Chart 1—Mean faculty salaries in veterinary colleges of the United States and Canada. Code letters indicate colleges.

Council on Education—1960



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COUNCIL REPORT

AVMA Council on Veterinary Service

Incidence of Brucellosis Declining

The most recent meeting of the Council on Veterinary Services of the American Veterinary Medical Association met April 25-26, 1960, in Chicago.

Significant among the reports given at the Council was the report to the National Brucellosis Committee by Dr. J. L. McAuliff of Cortland, N.Y., concerning the current status of brucellosis. In the report, it was brought out that freedom of movement of cattle from certified areas is one of the cattle industry's greatest incentives for attaining a certified status. The nationwide eradication program will continue to be accelerated as more and more states recognize certified areas as sources of noninfected imports. An extensive survey, involving over 52,000 cattle tested at destination, indicated that brucellosis is practically nonexistent in cattle shipped from certified areas.

It was stated further that vaccination alone cannot be expected to eradicate brucellosis nor to free the majority of infected herds from the disease. Infected animals must be identified and eliminated. Vaccination affords about 60 to 70 per cent protection.

Dr. F. T. Candlin of Denver, Colo., serving in a liaison capacity to the American Humane Association, reported on the incorporation of humane slaughter laws by five state governments. Dr. Candlin also reported on a proposed memorandum of understanding for humane organizations and veterinarians. In the memorandum, it was recommended that a joint council be created to air grievances; that correlated instruction in humane care and treatment of animals and exposition of the duties and responsibilities of humane societies be incorporated into the curricula of veterinary colleges; that humane organizations be encouraged to make available their veterinary facilities to licensed veterinarians on an equitable basis; and that veterinarians be encouraged to provide charitable services through mutual cooperation between local veterinary associations and local humane associations.

In the report of the Committee on Veterinary Practice Aspects of Drug Use in Animal Medicine, it was stated that

> The indiscriminate use of these (feed additive) preparations has been accompanied by creating of problems affecting both animal health and public welfare. It has become apparent that mass administration of material originally recommended for therapeutic purposes to normal animals is not without danger and is contrary to accepted medical practices.
>
> The present method of obtaining approval for release of preparations for unrestricted use fails to set standards that are stringent enough nor does it provide for an objective evaluation of these preparations prior to release.
>
> The gravity of the situation makes immediate consideration of a solution to the problem imperative. It is, therefore, the recommendation of this committee that the AVMA take the initiative in organizing a group consisting of representatives of the AVMA, AMA, APA, and allied medical professions, as well as livestock groups.

The Committee on Biological and Pharmaceutical Supply Problems recommended that continued study be made on the effect veterinary cooperative ownership of biological and pharmaceutical companies might have concerning the public welfare so that a guide can be established for directing AVMA members who may be encouraged or influenced to engage in cooperative ownership.

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Organization Section

APPLICATIONS

Applicants Not Members of Constituent Associations

In accordance with paragraph (c) of Section 1, Article I, of the Bylaws, the names of applicants who are not members of constituent associations shall be published in the JOURNAL. Written comments received by the Executive Secretary from any active member regarding the application as published, will be furnished to the Judicial Council for its consideration prior to acceptance of the application.

MAJEED MUHAMMAD ABDUL
College of Animal Husbandry,
Lahore, 1, West Pakistan.
B.V.Sc., Punjab Veterinary College, 1952.
Vouchers: E. C. Stone and R. L. Ott.

JACALNE, ANTONIO V.
Herran St., Institute of Hygiene
University of the Philippines
Manila, Philippines
D.V.M., University of the Philippines, 1953.
Vouchers: H. E. Kingman, Jr. and D. A. Price.

Dr. Thompson Heads Industry Services

Dr. Owen L. Thompson (WSU '59) has been appointed head of the industry services department of Dr. Salsbury's Laboratories,

Dr. Owen L. Thompson

Charles City, Iowa. He was formerly a technical service representative for the livestock and poultry health product firm. In his new position, he directs the activities of personnel in education, industry public relations, and technical service.

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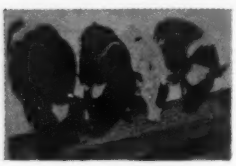

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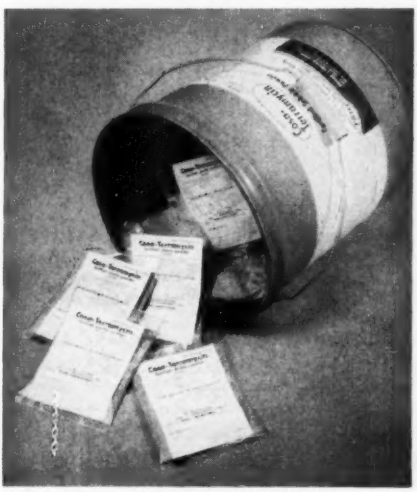

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History of the AVMA

1890

The election of W. H. Hoskins as secretary apparently boded good for the Association, for in June, 1890, the *Review* carried "preview" of the annual meeting for the first time. This promised that the meeting to be held in Chicago—in itself a notable departure from tradition—would be "the most important meeting held by the Association for many years. . . . It behooves every member . . . to consider his duty toward the growing West, and its vast number of earnest, hard working veterinarians, who should today be identified with our Association." Another innovation was the 120-page report of the Chicago meeting, published as an extra issue of the *Review*.

The Chicago Auditorium in 1890, site of the USVMA annual meeting. This building is still standing on Michigan Ave. and Congress St. in Chicago.

The move to the West was a wise one, as indicated by the fact that five future presidents of the Association, not yet members, were present: W. L. Williams, L. A. Merillat, Sesco Stewart, C. A. Cary and S. Brenton.

In his address of welcome, W. L. Williams called for ". . . a strong reciprocal interest between the older and better organized profession of the East, and the younger and now numerically equal body of Western veterinarians." To this, President Michener responded: "We may arrogantly assume, that as of old, the wise men are in the East, but I must insist that the veterinary profession is an exception . . . . today we place the cornerstone—the foundation of our Association has been building since June, 1863."

The acquisition of some 80 new members was somewhat marred by the dropping of some 40, including H. J. Detmers and F. S. Billings, for non-payment of dues "and other causes."

The Committee on Education, noting that men still "enter and graduate who can barely write their own names," urged not only standard matriculation requirements, but "a collegiate or academic course of some kind prior to the student's entering upon his veterinary studies." This appears to be the first suggestion for a pre-professional requirement. Current veterinary textbooks were censured as being behind the times. The need for adequate veterinary legislation was recognized, but this would not be "a universal panacea for every ill. . . . The American people—not including politicians who make the laws—are a pretty level-headed lot, and in time will appreciate the distinction between the educated veterinarian and the quack horse doctor."

The Committee on Diseases reported the work of Theobald Smith on the parasitic organism of the blood in Texas fever, but had little to say concerning the role of ticks in transmission. On hog cholera: "The conclusion has been definitely reached that there are two separate and distinct diseases, the one known as hog cholera and the other known as swine plague." The government program of slaughter for pleuropneumonia was recognized as so successful "that today the disease is thought to exist in only a very limited area around New York City." The fact that tubercle bacilli could be found in milk of cows with no lesions of the udder was emphasized.

Dr. Huidekoper reported having submitted a bill calling for creation of a Veterinary Corps, but was advised this was premature. A substitute bill calling for a veterinary division of the Quartermaster Department was being embarrassed by various other bills promoted "principally by veterinarians now in the employ of the Army."

Dr. Huidekoper was elected president, and W. L. Williams, vice president. Drs. Hoskins and Robertson were re-elected secretary and treasurer respectively.

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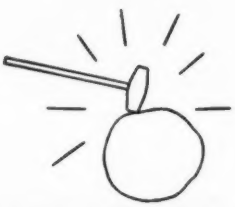

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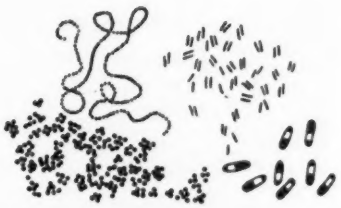

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Quiz for Quidnuncs

1. What technique has been shown to be practical in determining normal and abnormal acetabula in dogs? Page 97.

2. How long may penicillin persist in milk following intramammary infusion? Is it safe to market milk from untreated quarters if other quarters of a cow have been treated? Page 112.

3. What disease in cats is associated with eating canned red tuna? Page 128.

4. How effective are pentobarbital and thiopental in combination with a tranquilizer for producing short-term anesthesia in a horse? Page 122.

5. How does longevity of dogs kept in well-managed kennels compare with longevity of those kept in private homes? Page 135.

National Farm Safety Week, July 24-30, 1960

The President of the United States by proclamation has called upon the people of the nation, urban and rural, to observe the week beginning July 24 as National Farm Safety Week.

The USDA and National Safety Council cosponsor this observance in cooperation with the State Agriculture Extension Services, farm organizations, the farm press, radio, television, and other groups to join in making the decade of the 60's memorable for accident prevention.

The theme of Farm Safety Week this year is "Enjoy Farm Life—Practice Safety." During the decade of the 1950's, farm families have diligently reduced their accident death rate from 63.3 deaths per 100,000 farm residents in 1950 to 54.3 in 1958, the latest rate available. Nonfatal injuries were likewise reduced. Nevertheless, injury and death rates from accidents continue to be higher among farm people than for the rest of the population, and we may expect this year that 1 farm family in 4 will suffer a serious injury to 1 of its members.

The leading cause of fatal accidents on farms is machinery, which accounts for 1 out of every 3 fatal accidents on farms. Animals account for about 1 out of every 20 fatal accidents.—*USDA Release, March 31, 1960.*

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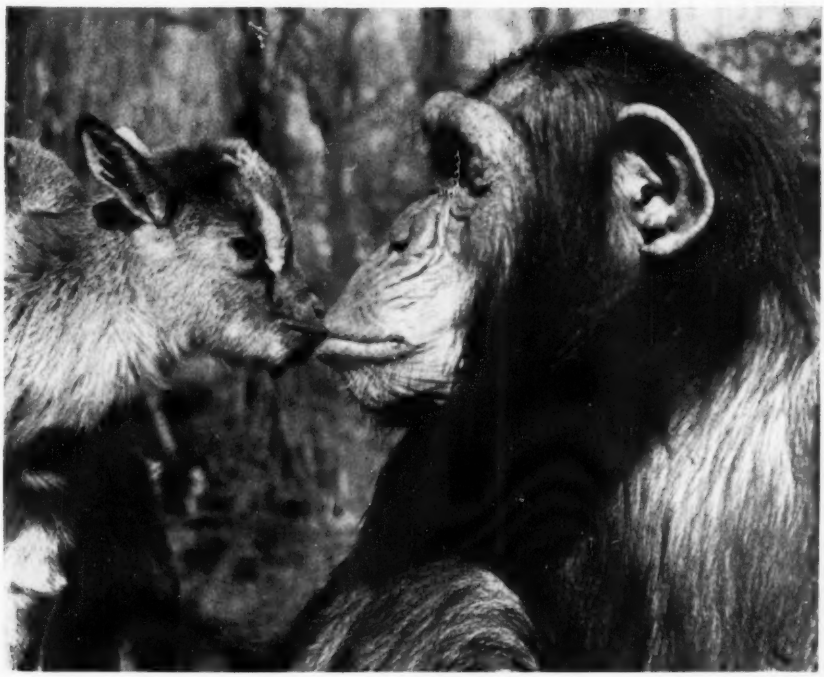

—*UPI Photo*

. . . between Buddah the Chimp and Greta the Goat, constant companions at the Frankfurt, Germany, Zoo.

Dogs Needed in Dysplasia Study

The Orthopedic Research Laboratory, University of Pittsburgh, Pa., needs dogs, dysplastic or normal, of all ages and breeds, for research to aid both dogs and man. By learning more about dysplasia, the crippling condition can be prevented from progressing so rapidly, and surgery may be able to help dogs walk naturally and without pain.

The University also would like to receive dogs with osteoarthritis which would otherwise be put to sleep. Their research includes Perthes' disease, which also affects children.

They will pay transportation costs and would appreciate being notified prior to the arrival of the dog so that proper arrangements may be made.—*Dog World, Jan., 1960: 11.*

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Richard D. Burns Appointed Veterinary Editor for Eaton

Dr. Richard D. Burns (OSU '53) has been appointed senior veterinary editor in the Scientific Information Division of Eaton Laboratories, Norwich, N. Y.

Since graduation, Dr. Burns has been in small animal practice in Columbus, Ohio.

Dr. Richard D. Burns

He returned to OSU and received an M.A. degree in journalism. Since then he has written extensively for several veterinary publications.

In his position at Eaton Laboratories, Dr. Burns will abstract and edit veterinary research papers that concern the use of the nitrofurans.

Dr. Burns was born and educated in Cincinnati, Ohio. He attended the University of Cincinnati in chemical engineering for one year prior to entering the service in 1941.

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Jaimie Cornwell, 20, of North Carolina, Working Toward Eighth Dog Championship

In her seven years of showing dogs, Jaimie Cornwell of Asheville, N.C., has chalked up as many awards as most veteran handlers can boast. Jaimie began showing Collies at the age of 13; then went into the breeding of English Setters and Pointers. Her expert training and handling has led 4 Setters and 3 Pointers to blue ribbons. Four of these championships were earned in one year.

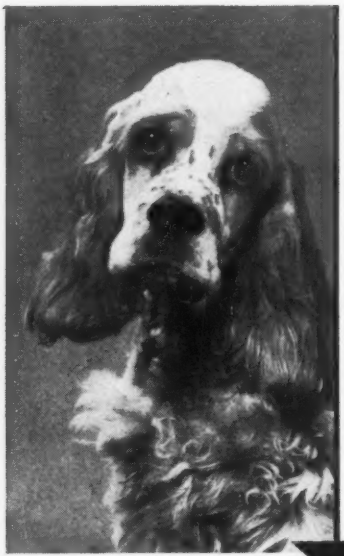
Altogether, Jamie has placed 45 Setters and Pointers and has 39 awards in the Junior Handling Class, judged on the handling of dogs, rather than on the dogs themselves. It is any wonder that in 1956, Jaimie was awarded the Gaines Research Award for Outstanding Girl Show Dog Fancier?

In February, 1960, a Pointer bred and sold by Jamie was judged Best of Breed at the Madison Square Garden show. She has shipped championship Setters to British Columbia and Tokyo, Japan.

In Asheville, she helped organize the Junior Kennel Club and served as its president and treasurer. Presently, she is JKC advisor and corresponding secretary of the Asheville Kennel Club. Various television stations and civic groups have had Jaimie demonstrate her technique of grooming and handling dogs.

Pictured above with Jaimie Cornwell is Mr. Robert G. Fortune, president of the American Business Club, and Manlore's Tara Mark-Ye-Well. Tara, at 18 months, made her show-ring debut last July by winning "Best Dog in Show" award at a North Carolina show.

Following in the footsteps of her veterinarian father, Dr. James I. Cornwell, Jaimie is studying preveterinary medicine at Asheville-Biltmore College. In her spare time she operates a boarding kennel, trims Poodles, leash-breaks pups, and shows all breeds from Pugs to Great Danes.



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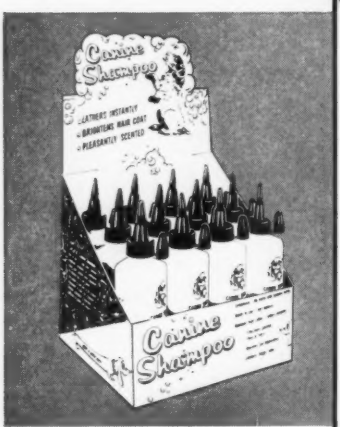

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Only a small amount of this shampoo over the wet coat forms an instant lather. Dirt and body oils are lifted out . . . odors are eliminated . . . and the dog's coat is left clean and glossy. A little goes a long way . . . you can dilute one part shampoo with two parts water if desired.

CANINE SHAMPOO contains active pesticides—Lindane and Malathion—to effectively control fleas, lice and ticks. Plastic squeeze bottle makes it convenient to use . . . fits your hand easily, won't slip when wet.

You can order CANINE SHAMPOO in cartons of one dozen 4-ounce plastic squeeze bottles or by the gallon. A request from you will bring a National man to your office. CANINE SHAMPOO is made only by National . . . your guarantee of quality.

CONCENTRATED—Canine Shampoo can be diluted 1:2 with water. No waste with handy squeeze bottle.

PACKED in display cartons—
1 dozen 4-ounce plastic squeeze bottles: $7.50
Or order by gallon: $10.50

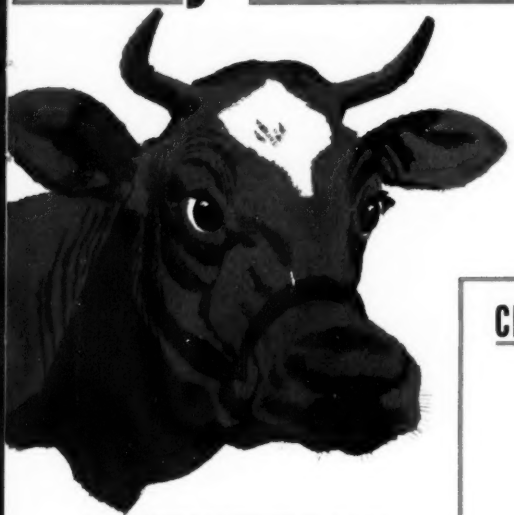
Serving the Graduate Veterinarian Exclusively

★

1721 Baltimore Avenue THE NATIONAL LABORATORIES CORP. Kansas City 8, Missouri

Affiliated BIOLOGICS

New URISED® Bolus for rapid relief of urinary infections in large animals



Relieves many urinary disorders—
attacks both smooth muscle spasms
and urinary tract infections!

Check these outstanding advantages:

- **Designed specifically for large animals**
- **Attacks both gram-negative and gram-positive organisms all along the urinary tract**
- **Provides rapid relief of pain**
- **Often relieves urinary stasis**
- **Minimum need for bacteriologic studies**
- **Safe—even for long-term use**
- **Convenient dosage form**
- **Economical**

Each Urised Bolus contains: Atropine Sulfate, 0.01 gr.; Hyoscyamine, 0.01 gr.; Gelsemium, Methenamine, Salol, Benzoic Acid, Methylene Blue.

Dosage: For large animals, one to two Urised Boluses twice daily—for sheep and calves, one Urised Bolus twice daily, or as required for maximum therapeutic effect.

Supplied: Bottles of 100 Boluses.

URISED® VETERINARY
ideal for small animals, too!

Indicated in all urinary Infections—Calculi—Nephritis—Cystitis—Urethral Spasm—Pyelitis—Prostatitis—Urinary Retention—Dysuria

DOSAGE: Dogs (average size)—two tablets Urised Veterinary three times daily.

Cats—One tablet Urised Veterinary three times daily.

Dosage may be adjusted according to condition treated and effect desired. For long-term therapy, dosage may be decreased gradually to one tablet daily or as required.

Sold Only To Graduate Veterinarians

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Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

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FIRST CLASS PERMIT NO. 9170, CHICAGO, ILL.

CHICAGO PHARMACAL COMPANY
5547 N. Ravenswood Ave.
Uptown Station CHICAGO 40, ILL.

Invigorate "Ole Sniffer"

CANITONE™ IMPROVES DOGS' GENERAL WELL-BEING . . .

Canitone corrects specific deficiencies, helps:

- increase appetite and establish sense of well-being
- hasten post-operative convalescence
- increase endurance and relieve fatigue, lassitude
- hasten recovery from stress, trauma, infection
- improve appearance of coat
- protect against osteoporosis
- promote better muscle tone
- prolong period of activity, useful life
- prevent recurrent dermatitis
- prevent obesity

EACH TABLET CONTAINS: Methyl Testosterone 1.0 mg.; Diethylstilbestrol 0.05 mg.; Thiamine Mononitrate 1.0 mg.; Thyroid 16.2 mg.; Calcium Glycerophosphate 130.0 mg.

Dosage: One or two tablets daily, depending on weight of animal. Give orally, with or without food. Maintenance dosage may be adjusted to individual requirements.

Supplied: Bottles of 100 and 1000.

SOLD ONLY TO GRADUATE VETERINARIANS

Veterinary Division
CHICAGO PHARMACAL CO.

Send me at once:		Quantity
100 Urised Boluses	@ $ 16.00	
6-100 Urised Boluses	@ $ 80.00	
13-100 Urised Boluses	@ $160.00	
100 Urised Veterinary Tablets	@ $ 1.50	
1000 Urised Veterinary Tablets	@ $ 8.00	
100 Canitone Tablets	@ $ 1.50	
1000 Canitone Tablets	@ $ 12.50	

Name _____

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City _____

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2:00 P.M. Fritz wonders what it's all about as his favorite veterinarian begins a Seleen treatment.

2:02 P.M. Easy Doc, that spot's a little tender.

2:06 P.M. Ahhh. Just a little higher and to the right.

2:12 P.M. I like it. Seleen. Be with you in a minute.

Seleen®: Across the board control for small animal skin conditions

SEBORRHEIC DERMATITIS
FLEAS AND LICE
SUMMER ECZEMA
DEMODEX MANGE
NONSPECIFIC DERMATOSES
TICKS AND MANGE MITES
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Complete control for 87% of all nonspecific dermatoses cases treated.* Itching and scratching usually relieved immediately. Mites often killed with one treatment. Often effective where other treatment fails.

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SELEEN—SELENIUM SULFIDE, ABBOTT

*Clinical data on file at Abbott Laboratories.

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at G.L.F. stores

OR WRITE: BIG RED, CANANDAIGUA, NEW YORK

COOPERATIVE G.L.F. EXCHANGE, INC.

Coming Meetings

Notices of coming meetings must be received 30 days before date of publication.

Virginia Veterinary Medical Association. Summer meeting. Shoreham Hotel, Washington, D.C., July 17-19, 1960. G. B. Estes, State Office Building, Richmond, Va., secretary-treasurer.

Kentucky Veterinary Medical Association. Forty-ninth annual convention. Sheraton-Seelbach Hotel, Louisville, July 18-19, 1960. L. S. Shirrell, 545 East Main, Frankfort, Ky., secretary.

Auburn University. Fifty-third annual conference for veterinarians. School of Veterinary Medicine, Auburn University, July 24-27, 1960. J. E. Greene, dean.

Canadian Veterinary Medical Association. Twelfth annual meeting. Halifax, Nova Scotia, July 24-27, 1960. For reservations, write: Dr. M. D. Harlow, Box 1153, Halifax, Nova Scotia, Can.

Arkansas Veterinary Practitioner's Association. Holiday Inn, Hot Springs, Ark, July 31-Aug. 2, 1960. Wayne H. Babbitt, 204 East 13th St., North Little Rock, Ark, secretary-treasurer.

Louisiana Veterinary Medical Association, Inc. Annual meeting. Monteleone Hotel, New Orleans, Aug. 1-2, 1960. Robert K. Morris, 406 W. McNeese St., Lake Charles, La., secretary.

American Society of Veterinary Physiologists and Pharmacologists. Annual meeting. Department of Physiology, College of Veterinary Medicine, Colorado State University, Fort Collins, Colo., Aug. 11-12, 1960. The sessions will be held on both days from 9 a. m. until noon and from 1 p.m. until 4:30 p.m. N.H. Booth, Colorado State University, Fort Collins, Colo., president.

American Association of Veterinary Bacteriologists. Annual meeting. Division of Veterinary Science, University of Wyoming, Laramie, Wyo., Aug. 13, 1960. Charles H. Cunningham, Department of Microbiology and Public Health, Michigan State University, East Lansing, Mich., secretary.

American Veterinary Medical Association. Ninety-seventh annual meeting. Denver-Hilton Hotel, Denver, Colo., Aug. 15-18, 1960. H. E. Kingman, Jr., 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

American Humane Association. Annual convention. LaSalle Hotel, Chicago, Ill., Sept. 26-28, 1960. Mr. R. T. Phillips, 896 Pennsylvania St., Denver 3, Colo., executive director.

National Association of Artificial Breeders. Thirteenth annual convention. Brown Hotel, Louisville, Ky., Aug. 21-24, 1960. Dr. H. A. Herman, 10 North Ninth St., Columbia, Mo., executive secretary.

Armed Forces Institute of Pathology. Seventh annual course. Armed Forces Institute of Pathology, Washington, D.C., Sept. 26-30, 1960. Deadline for applications is August 15. To apply, write: The Director, Armed Forces Institute of Pathology. Washington 25, D.C.

Helminthological Society of Washington. Fiftieth anniversary. Scientific program will be conducted at the University of Maryland, College Park, Md., Oct. 8, 1960. Helminthological Society of Washington, Animal Disease and Parasite Research Branch, ARS, USDA, Beltsville, Md., publicity committee.

Gaines Dog Research Center. Tenth annual symposium. Kankakee Civic Auditorium, Kankakee, Ill., Oct. 12, 1960. Dean C. A. Brandly, School of Veterinary Medicine, University of Illinois, Urbana, Ill., chairman.

Eastern Iowa Veterinary Association, Inc. Forty-seventh annual meeting. Hotel Montrose, Cedar Rapids, Oct. 13-14, 1960. Charles B. Thayer, Medical Laboratory Center, S. U. I., Iowa City, Iowa, secretary.

United States Livestock Sanitary Association. Sixty-fourth annual meeting. Daniel Boone Hotel, Charleston, W. Va., Oct. 19-21, 1960. R. A. Hendershott, 33 Oak Lane, Trenton 8, N.J., secretary.

Southern Veterinary Medical Association, Inc. Annual meeting. Francis Marion Hotel, Charleston, S.C., Oct. 23-26, 1960. Otto M. Strock, 461 Maybank Highway, Charleston, S.C., general chairman.

Animal Care Panel. Annual convention. Sheraton-Jefferson Hotel, St. Louis, Mo., Oct. 26-28, 1960. Herbert Graff, 835 S. 8th St., St. Louis, Mo., convention secretary.

Cornell University. Annual nutrition conference for feed manufacturers. Statler Hilton Hotel, Buffalo, N.Y., Nov. 2-4, 1960. For programs, preregistration and hotel reservation cards, contact: Prof. Harold H. Williams, Savage Hall, Cornell University, Ithaca, N.Y., chairman.

Missouri, University of. Thirty-sixth annual veterinary conference. University of Missouri, School of Veterinary Medicine, Columbia, Mo., Nov. 7-8, 1960. Cecil Elder, School of Veterinary Medicine, Veterinary Pathology, University of Missouri, chairman.

Arkansas Veterinary Medical Association. Annual meeting. Hotel Marion, Little Rock, Jan. 22-24, 1961. Thayer D. Hendrickson, 7824 Cantrell Rd., Little Rock, Ark., secretary-treasurer.

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15 oz. economy size
$1.75
Order from your dealer or direct from the Odell Co., Box 772, Newark, N. J. giving dealer's name

Foreign Meetings

First International Congress of Endocrinology. Technical University of Denmark, Copenhagen, July 18-23, 1960. Dr. Christian Hamburger, Statens Seruminstitut, Copenhagen S, Denmark, chairman of the executive committee.

Second International Course on Lyophilization. Lyon, France, Aug. 29—Sept. 9, 1960. For full details, contact: Dr. Louis R. Rey, Directeur des Cours Internationaux de Lyophilisation, Laboratoire de Physiologie, Ecole Normale Superieure 24, rue Lhomond, Paris 5, France.

Fourth International Congress on Animal Reproduction. The Hague, Netherlands, June 5-9, 1961. For additional information contact: the Secretariat of the Fourth International Congress on Animal Reproduction, 14, Burgemeester de Monchyplein, The Hague, Netherlands, Dr. L. Hoedemaker, secretary to the organizing committee.

Eighth International Congress of Animal Husbandry. Hamburg, Germany, June 13, 1961.

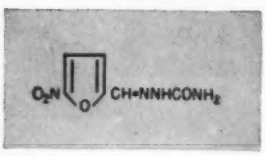
Bubonic Plague Strikes Veterinarian

Bubonic plague was the confirmed diagnosis of the illness of a California veterinarian. The disease was arrested with antibiotics, but it source remains a mystery. The veterinarian had received many flea bites in his work, but there has been no spread of the illness among his contacts.

One other case had developed several weeks previously about 100 miles away. Studies of the environment, which is known to be an endemic area, were conducted by the state and Public Health Service of California.—*Morbid. and Mortal. Dept., U.S. Dept. Health, Education and Welfare, 8, (July 17, 1959): 2.*

FURACIN®

widely used and highly successful in veterinary medicine



FURACIN, brand of nitrofurazone (5-nitro-2-furaldehyde semicarbazone), is one of a group of synthetically produced organic compounds known as the nitrofurans—a unique class of antimicrobials. More than 2,500 scientific papers in 25 languages in 40 countries reflect the importance of this group of therapeutic agents in human and veterinary medicine.

The many advantages which have made FURACIN outstandingly effective in an increasing number of clinical indications are:

- bactericidal rather than bacteriostatic—uniquely different from the sulfonamides and most antibiotics
- effective against a wide range of pathogenic bacteria regardless of their gram-staining properties
- little or no development of bacterial resistance
- does not interfere with phagocytosis or healing
- sustained effectiveness in presence of pus, blood or serum

FURACIN is effective in vitro against a multiplicity of organisms including many antibiotic-resistant strains of:

GRAM-NEGATIVE BACTERIA	Proteus sp.*	Clostridium sp.
Aerobacter sp.	Pseudomonas sp.*	Corynebacterium sp.
Alcaligenes sp.	Salmonella sp.	Diplococcus sp.
Brucella sp.	Serratia sp.	Mycobacterium sp.
Escherichia sp.	Shigella sp.	Staphylococcus sp.
Klebsiella sp.		Streptococcus sp.
Paracolobactrum sp.	*GRAM-POSITIVE BACTERIA*	(Sensi-Discs for sensitivity testing are available from Baltimore Biological Laboratory.)
Pasteurella sp.	Bacillus sp.	

*Not all strains of Proteus sp. and Pseudomonas sp. are sensitive in vitro.

The specific action of FURACIN is indicated in necrotic enteritis of swine, gray droppings of mink, avian coccidiosis and bovine mastitis. It is also an effective topical agent against bacterial infections of surface lesions, the eye, ear, and genital tract.

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TOPICALLY IN VETERINARY MEDICINE

IN SURFACE INFECTIONS FURACIN Dressing Veterinary —FURACIN (brand of nitrofurazone) 0.2% dissolved in a water-soluble base of ointment-like consistency

FURACIN Dressing Veterinary with Anesthetic—a water-soluble ointment containing FURACIN 0.2% with butacaine 0.5%.

FURACIN Solution Veterinary—water-miscible liquid of FURACIN 0.2% in polyethylene glycol and water. Valuable in bovine mastitis and impaired fertility.

IN BOVINE MASTITIS FURACIN Solution Veterinary SQUEEJET®—*new*, single-dose, disposable unit of 30 cc. FURACIN 0.2% in polyethylene glycol and water. Especially adapted for use in impaired fertility.

FURACIN-penicillin GEL Veterinary—a crystalline suspension of FURACIN 2% and 13,333 units per cc. of procaine penicillin G in peanut oil with 3% aluminum monostearate.

IN EYE INFECTIONS FURACIN Soluble Powder Veterinary —a soft, water-soluble powder containing FURACIN 0.2% in polyethylene glycol.

IN EAR INFECTIONS FURACIN Ear Solution Veterinary —an anhydrous hygroscopic, water-soluble liquid composed of FURACIN 0.2% and polyethylene glycol.

IN GENITAL TRACT INFECTIONS FURACIN Suppositories Veterinary—a water-soluble base suppository, containing FURACIN 0.4%; melts at body temperature. Suitable for use in bovine retained placenta.

FURACIN Solution Veterinary—water-miscible liquid of 0.2% FURACIN in polyethylene glycol and water.

IN RETAINED PLACENTA FUREA® Veterinary – a bolus containing 0.12 grams of FURACIN to control infection and 12 grams urea to exert a proteolytic effect on necrotic tissue.

NITROFURANS—a *unique* class of antimicrobials—neither antibiotics nor sulfonamides

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Let the Government Pay You

for saving for something you want

An installment plan that pays you interest sounds surprising, doesn't it? That's what happens when you buy U.S. Savings Bonds. They now pay you 3¾% compounded semi-annually when held to maturity. With this new rate, $3 becomes $4 fourteen months faster than before—in just 7 years, 9 months. Make your dreams come true, faster than ever, with U.S. Savings Bonds.

ADVANTAGES WORTH THINKING ABOUT

• You can save automatically with the Payroll Savings Plan • You now earn 3¾% interest to maturity • You invest without risk under a U.S. Government guarantee • Your money can't be lost or stolen • You can get your money, with interest, anytime you want it • You save more than money—you help your Government pay for peace • Buy Bonds where you work or bank.

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You save more than money with U.S. Savings Bonds

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Promazine Hydrochloride, Wyeth HYDROCHLORIDE

"...has brought considerable change in the management and treatment of animals"*

Weberlein and associates reported on the use of SPARINE in small animal practice. SPARINE was given to 249 dogs to facilitate examination and as an adjunct to local and general anesthetics. They found that SPARINE ". . . proved to be valuable in veterinary practice. The animal benefits by its use, the client is pleased and the veterinarian may work effectively."*

*Weberlein, M.K., et al.: J.A.V.M.A. *134*:518-519 (June 1) 1959.

Wyeth Laboratories Philadelphia 1, Pa.

AVAILABLE: TABLETS: 25, 50, 100 mg., vials of 50.
INJECTION: 50 mg. per cc., vials of 10, 30, and 100 cc.

For further information on prescribing and administering SPARINE see descriptive literature, available on request.

SUPPLIED ONLY TO THE PROFESSIONS

100 Years Wyeth

A Century of Service

MAP OF DOWNTOWN DENVER

HOTEL INFORMATION—DENVER, COLORADO, CONVENTION

Ninety-Seventh Annual AVMA Meeting, Aug. 14-18, 1960

All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Denver Convention and Visitors Bureau. The Bureau will clear all requests and confirm reservations.

Hotel and Rate Schedule

(See Location, by Number, on Map of Downtown Area)

Map No.	Hotel	Single (1 person)	Double bed (2 persons)	Twin bed (2 persons)	Suites	Sets-2 rooms connecting bath (2-3-4 persons)
1	Adams*	$5.50-7.50	$ 7.50-9.00	$ 8.50-10.50	$13.50-15.00	$ 9.50-16.00 (1 Room, 2dbl. beds)
2	Albany†	6.50-9.50	10.00-12.00	12.50-14.00	30.00	- - - - - - -
3	Ambassador	5.50-6.00	7.00-7.50	9.00	- - - - - - -	- - - - - - -
4	Argonaut*†	6.50-9.50	8.50-11.00	9.50-12.50	- - - - - - -	13.50-17.50
5	Auditorium*	5.00	6.50	7.00	- - - - - - -	8.00-12.00
6	Broadway Plaza†	8.00-10.00	10.00-12.00	12.00-14.50	18.00-28.00	- - - - - - -
7	Brown Palace†	9.00-15.00	13.00-17.00	14.00-19.00	22.00-70.00	18.00-22.00
8	Colorado*	4.50-6.00	6.00-10.00	8.00-12.00	- - - - - - -	14.00-20.00
9	Cory	5.00-7.00	6.00-9.00	6.50-9.00	- - - - - - -	- - - - - - -
10	Cosmopolitan*	8.50-11.00	12.00-18.00	14.00-20.00	22.00-60.00	- - - - - - -
11	Hillview	9.00-11.50	10.00-12.00	12.00-13.50	16.00-18.00	- - - - - - -
12	Hilton*†	HEADQUARTERS HOTEL — Reserved exclusively for official convention use.				
13	Kenmark (not a/c)	4.50-6.50	6.00-7.00	7.50-8.00	- - - - - - -	6.00-12.00
14	Mayflower*	7.50-14.50	8.50-16.50	12.50-18.50	- - - - - - -	- - - - - - -
15	Olin*	5.00-7.00	9.00-11.00	10.00-12.00	- - - - - - -	11.00-16.00
16	Oxford	5.00-10.00	6.50-10.00	8.50-11.00	13.00-16.00	- - - - - - -
17	Sears	5.00-6.00	6.50	7.50	- - - - - - -	14.00 (For 2-3-4 persons)
18	Shirley Savoy*	7.00-9.00	9.50-11.50	11.00-13.00	25.00	15.00-19.00

†100 per cent air-conditioned; in other hotels listed, majority of rooms air-conditioned.

FAMILY PLAN—The above hotels offer a "family plan" whereby children under 12 years of age will be accommodated in the same room with their parents at no extra charge. If more than one room is required to accommodate children, the hotel will charge only the single rate for each room.

MOTELS—Reservations for motels in the Denver area may be made through the Denver Convention and Visitors Bureau, 225 West Colfax, Denver 2, Colo.

PLEASE USE APPLICATION ON REVERSE SIDE FOR HOTEL ACCOMMODATIONS

Hotel Reservations

1960 AVMA Convention — Denver, Colorado

The Convention and Visitors Bureau will make every effort to place you according to your expressed wishes or, if the accommodations of your choice are not available, the Housing Bureau will select one that is nearest to the preferred rate and location.

Please give us the complete information requested below. At least four choices of hotels, or more if you desire, are necessary. Arrange for double occupancy of rooms wherever possible; only a limited number of single rooms is available.

If you have a few days before or after the convention that you would like to enjoy in the mountains, the Convention and Visitors Bureau will provide you with free information, on request, on the following: sightseeing trip; dude ranches; resorts; housekeeping cabins. In requesting this information, please indicate which type of literature you wish.

ADDRESS: Convention and Visitors Bureau, 225 West Colfax Avenue, Denver 2, Colo.

Reservations will be confirmed directly to those who return the application blank below and it should be received not later than July 25, 1960

Convention and Visitors Bureau
225 W. Colfax Ave.
Denver 2, Colo.

APPLICATION FOR ROOM ACCOMMODATIONS
Please print or type

Date .....

Hotel ..... First Choice

Hotel ..... Second Choice

Hotel ..... Third Choice

Hotel ..... Fourth Choice

☐ Room with bath for one person. Rate per room desired $..... to $.....

☐ Room with bath for .... persons. Rate per room desired $..... to $.....
☐ double bed ☐ twin beds

☐ Two rooms with connecting bath for .... persons:
Rate per set desired $..... to $.....

☐ Suite with .... bedroom(s) with bath for .... persons:
Rate per suite desired $..... to $.....

Arrival date ....., hour ..... A.M. ..... P.M. Departure .....

Name .....

Street Address .....

City ..... State .....

Please attach list of additional names if you do not have sufficient space here; also list ages of children, if any.

---

prevents milk fever relapse

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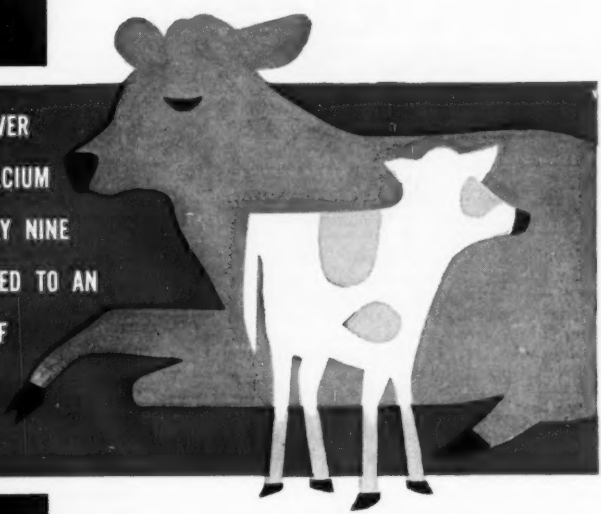

RECORDS OF 351 MILK FEVER CASES TREATED WITH CALCIUM AND PARTEROL SHOW ONLY NINE RELAPSES (2.5%), COMPARED TO AN AVERAGE RELAPSE RATE OF 22.8% WITH CALCIUM ALONE.[1,2,3]

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THE CRYSTAL CLEAR, NONPRECIPITATING INJECTABLE CALCIUM FOR IMMEDIATE REPLACEMENT THERAPY

Parterol prevents relapses in milk fever by raising the blood calcium level following parturition. Parterol has a specific action on blood calcium by supplementing the hormone secreted by the parathyroid glands. This calcium-raising action is produced by mobilizing the calcium stored in the bones and increasing the absorption of calcium from the intestinal tract.

PARTEROL ALSO PREVENTS MILK FEVER

Administered 24 hours prior to parturition, Parterol establishes and maintains an optimum concentration of calcium in the blood stream, usually precluding the development of milk fever.

Supplied in 30-cc. multidose vials, each cc. containing 2.5 mg. dihydrotachysterol in oil.

1. Harris, J. R. and Clarkson, T. B.: Prevention of Relapses in Milk Fever, Vet. Med. 12:696 (Dec., 1955).

2. Baker, W. L., Jr.: Prevention of Relapses in Milk Fever, N. Am. Vet., 37:203 (Mar., 1956).

3. Graham, K.D.: Milk Fever Relapses, Vet. News (Canada) 20: (Nov., 1958).

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DEADLINES

1st of month issue — 8th of month preceding date of issue.

15th of month issue — 22nd of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the box number, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be sent to the advertiser.

Wanted—Veterinarians

Wanted—assistant for mixed practice in a Middle Atlantic state. Race horse work available. Convenient living facilities. Excellent opportunity for right person to buy into practice. Salary and commission. Please state age, experience, availability and other qualifications. Married man preferred. Address Box G 55, JOURNAL of the AVMA.

Wanted—veterinarian for small animal hospital in Baltimore. Five day week. Permanent status leading to partnership for right person. Address Box G 7, JOURNAL of the AVMA.

One of the world's largest greyhound racing organizations requires the services of a well-experienced graduate in veterinary science to assume charge of the medical welfare of several hundred racing dogs. Duties, among other things, would include laboratory work, care of greyhounds with "track injuries," sprains, fractures, etc., collaborating with trainers in nutritional psychology, conditioning, etc. Organization headquarters in Miami, Fla., with breeding farm in Hendersonville, N.C. Man selected would spend about 8 to 9 months in Miami and balance of time at breeding farm. Please forward resume and salary requirements to Mr. L. L. Crosby, 3567 Bigelow Blvd., Pittsburgh 13, Pa.

Wanted—assistant for mixed practice in New York State. Half small animal. Modern hospital. License required. Include background and salary required in reply. House provided. Address Box G 52, JOURNAL of the AVMA.

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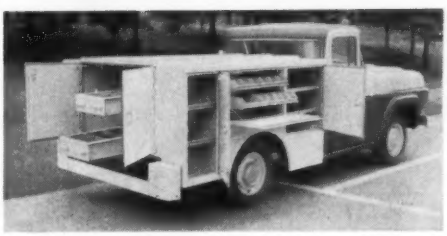

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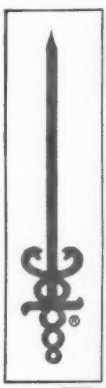

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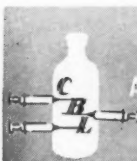

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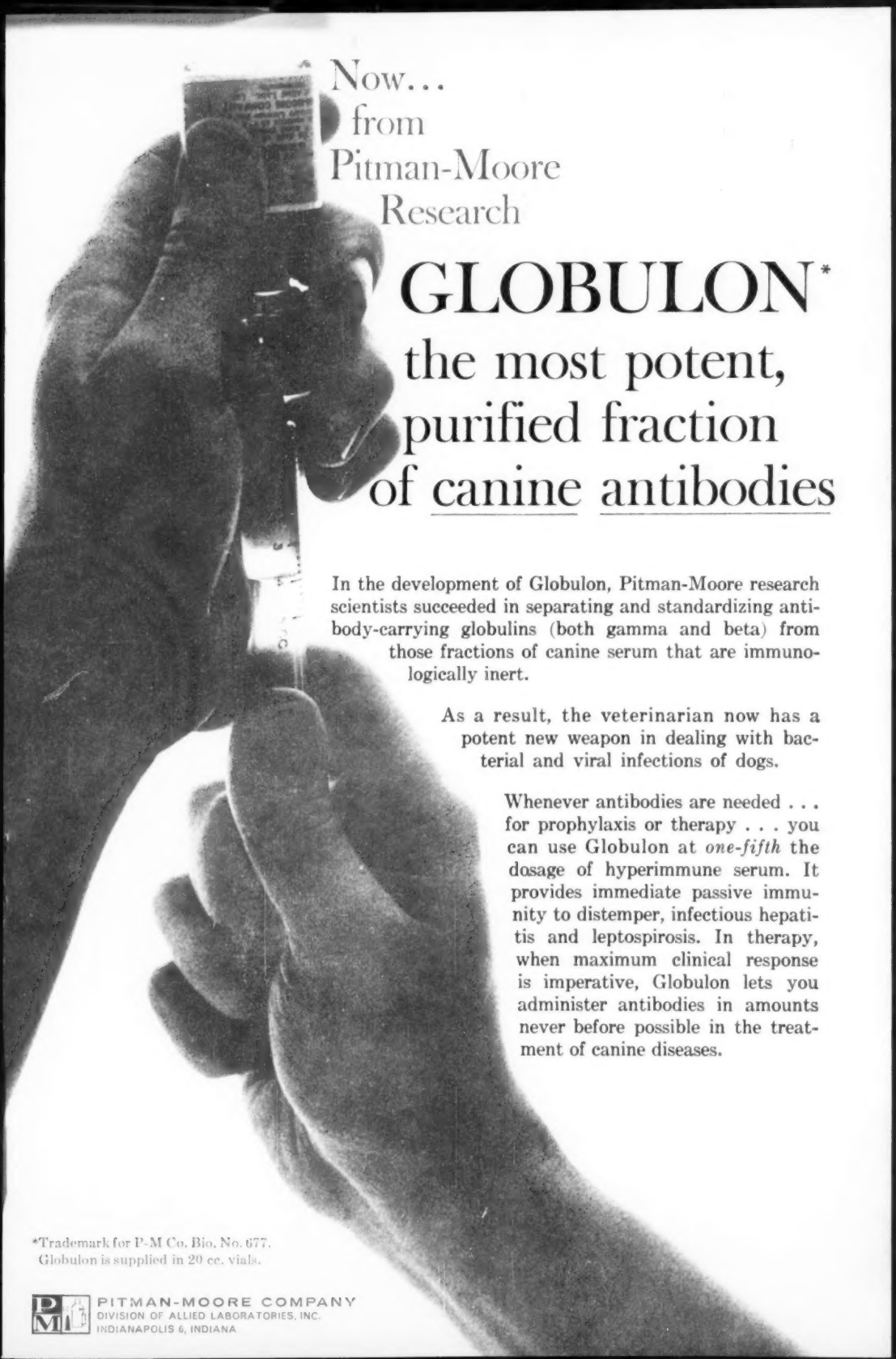

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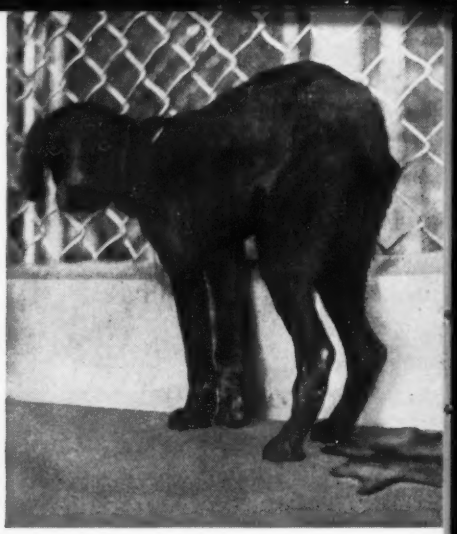

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